Symbol Wireless Switch System Configuration and Deployment Guide

SpectraLink's Voice Interoperability for Enterprise Wireless (VIEW) Certification Program is designed to ensure interoperability and high performance between NetLink Wireless Telephones and WLAN infrastructure products. The products listed below have been thoroughly tested in SpectraLink's lab and have passed VIEW Certification. This document details how to configure the Symbol Wireless Switch and Access Ports with NetLink Wireless Telephones.

Certified Product Summary

Manufacturer:	**Symbol Technologies: www.symbol.com**	
Approved products:	**WLAN Switches**	**Access Ports**
	WS5100 † **WS5000 †**	**AP-300 †**
RF technology:	**802.11b/g**	
Radio:	**2.4 – 2.484 GHz**	
Security :	**WPA-PSK and WPA2-PSK**	
Software version tested:	**1.4.3.0**	
NetLink Wireless Telephone software version tested:	**Version 2.0 (89.122)**	
Maximum telephone calls per AP:	**10 on the WS5100/AP300** **7 on the WS5000/AP300**	
Recommended network topology:	**Switched Ethernet (required)**	

† Denotes products used in Certification Testing

Service information

The AP must support SpectraLink Voice Priority (SVP). Contact your AP vendor if you need to upgrade the AP software.

If you encounter difficulties or have questions regarding the configuration process, please contact Symbol at:

United States and Canada: 631 738 6213 or 1 800 653 5350
For international callers outside the US: 001 631 738 6213

Or go to http://www.symbol.com/ for more information.

Network Topology

The following figures show the topologies that were tested during VIEW Certification. It is important to note that these do not necessarily represent all "Certified" configurations. The topologies shown in Figure 2 and 3 were used for roaming tests. The figures below are for illustration of VIEW Certification setups.

In all configurations, Symbol recommends that Ethernet 1 is used for all AP connections and Ethernet 2 used for connection to the NetLink Telephony Gateways and NetLink SVP server. Please refer to *Symbol Best Practices When Integrating WS5000 Series Switch Into Existing Wired Networks*, which is available for download at: http://www.symbol.com/category.php?fileName=AB-29_Best_Practice.xml

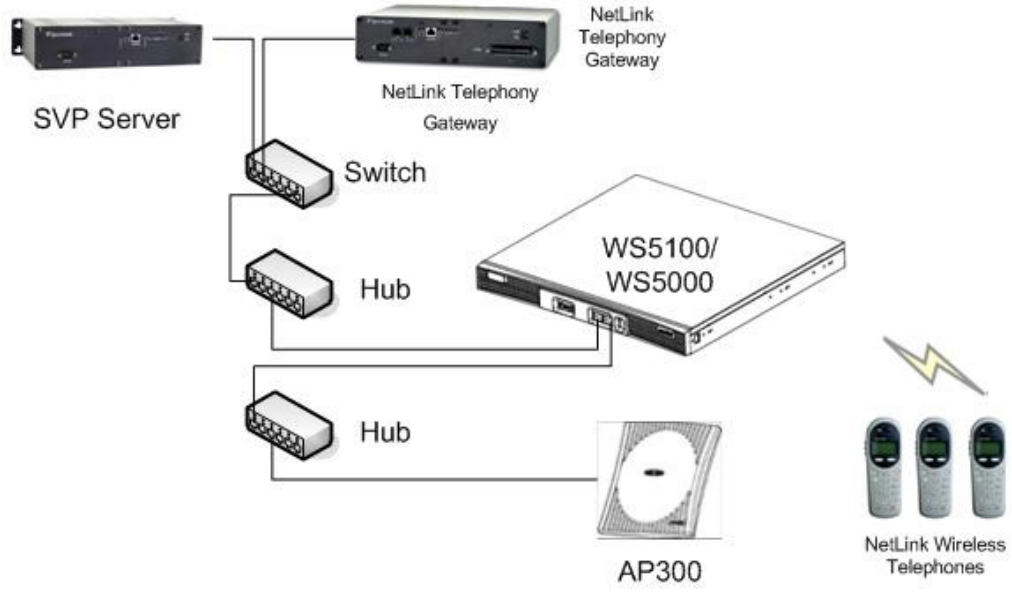

Figure 1 - Standalone Network Topology

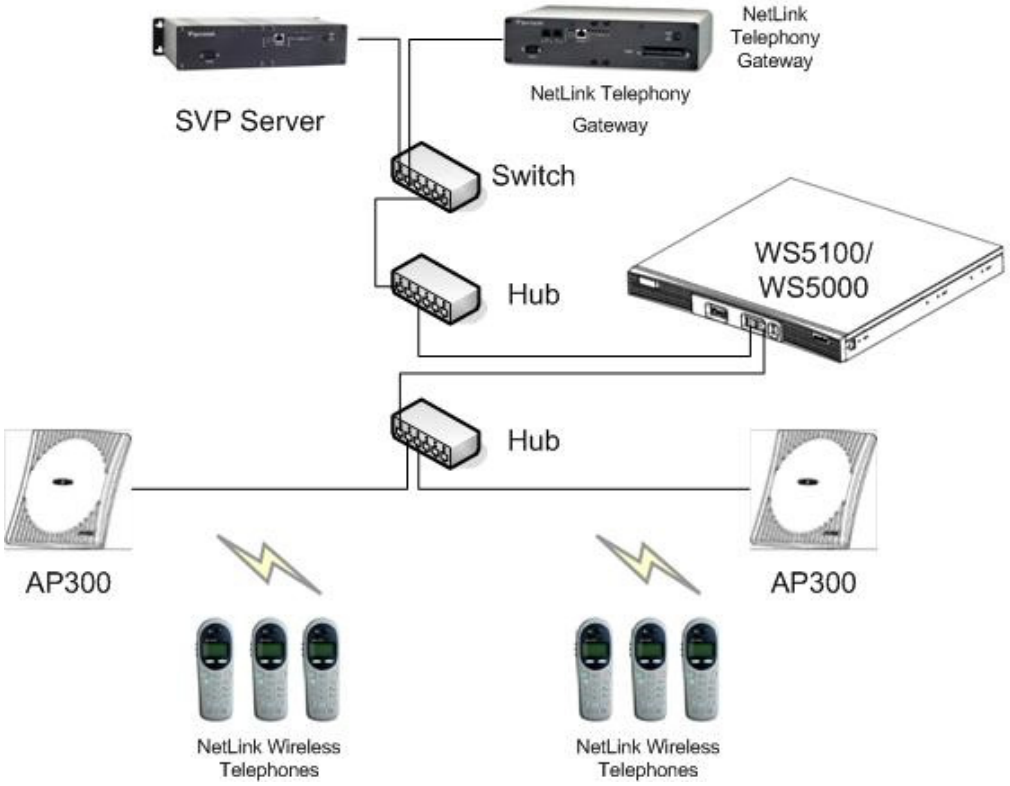

Figure 2 – Intra-Switch Network Topology

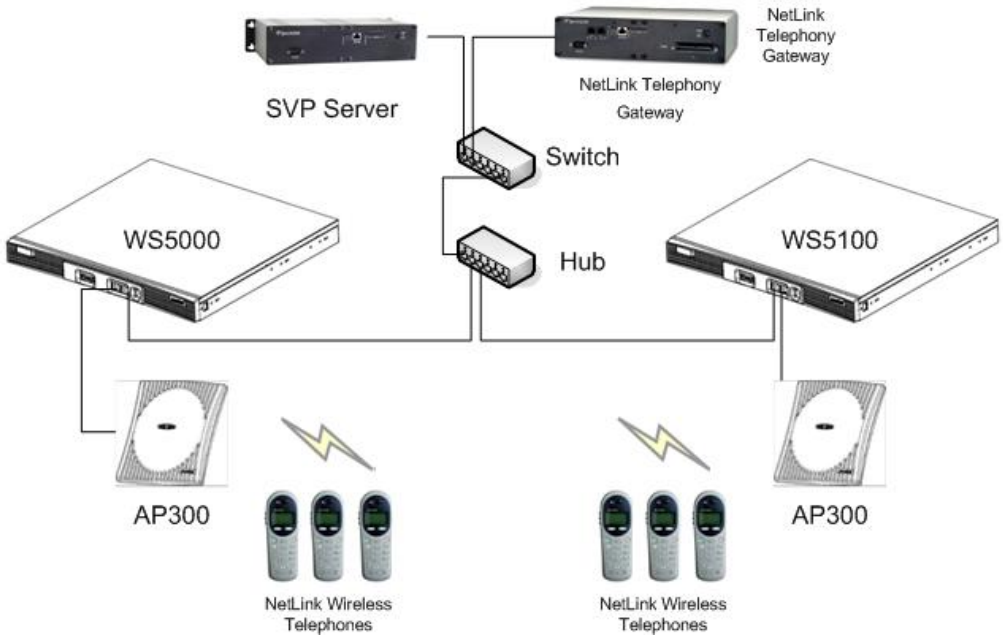

Figure 3 - Inter-Switch Network Topology

Known Limitations

During VIEW Certification testing, the following limitations were discovered.

You cannot have WPA-PSK and WPA2-PSK configured on handsets simultaneously within the same ESSID. The handsets will not check-in.

Access Point Capacity and Positioning

Each site is unique in its AP requirements. Therefore, please take the following points into account when determining how many APs are needed and where they should be placed in the facility:

Handset range
There must be wireless LAN coverage wherever the NetLink Wireless Telephones will be used. Adequate coverage for a NetLink Wireless Telephone can be determined by using the Site Survey mode on the handset that displays dB levels and channel when the handsets are in range of an access point (within approximately a -60dBM signal strength radius).

Number of Handset calls per AP
The number of Handsets that can be in call simultaneously was determined based on call quality within a lab environment. Since call quality is impacted by packet retry rate and missed packets, test criteria was established for the maximum data rate (11Mb/s) for handsets in range of the AP.

Variable Bandwidth
As the handsets move near the limits of optimal RF coverage from the AP, they will automatically drop to lower Mb/s operation. NetLink Wireless Telephones require approximately 15% of the available bandwidth per call for 1 Mb/s operation, approximately 10% of the available bandwidth per call for 2 Mb/s operation, approximately 7% of the available bandwidth for 5.5 Mb/s operation, and 5% of available bandwidth for 11 Mb/s operations.

LAN Bandwidth
Estimate anticipated peak call volume to ensure that the LAN has enough bandwidth to handle the network traffic generated by all of the wireless devices.

WLAN Bandwidth
The NetLink Wireless Telephones share bandwidth with other wireless devices. To ensure adequate RF bandwidth availability, consider the number of wireless data devices in use per AP when estimating the necessary number of devices. When heavy FTP traffic was running in the background, the Symbol AP could handle significantly fewer handsets in call.

Wireless Switch Setup and Configuration

The commands and procedures in this section describe setting up a WS5000 series switch "from scratch." The setup created by these commands, as closely as possible, emulates the configuration that was used during VIEW certification.

Command and Screen Text Key

In the sections below you will find commands, prompts, system responses, or other screen-displayed information involved in the configuration process. This key explains the text styles and symbols used to denote them.

Text Style	Denotes:
`xxxxxxxx`	Typed command
<*xxxxxxxx*>	Encryption key, domain name or other information specific to your system that needs to be entered
xxxxxxxx	Prompt, system response or other displayed information

Configuring the WS5100/WS5000 Switch

1. Using a standard RS-232 cable, connect the WS5100 Switch to the serial port of a terminal or PC.
2. Run a terminal emulation program (such as HyperTerminal) or use a VT-100 terminal with the following configuration:

Bits per second:	19200
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	None

3. Press Enter three times to display the user name: prompt.
4. Enter `cli`, and press Enter.
5. Enter username `admin` and default password, and press Enter.
   The System Context prompt, `WS5000>`, will display. This command line prompt shows the context in which commands will be entered, and is the starting point for working with the command line interface (CLI).

   At the System Context prompt, enter the Config Context by entering:

   ```
   cfg<cr>
   ```

   The Config Context prompt, `WS5000.(Cfg)>`, will display. All of the commands described below assume the user is starting from the Config Context.

   When moving to the next section of the configuration steps below, enter:

   ```
   end<cr>
   ```

   consecutively, until you return to the Config Context prompt.

6. If not already configured, configure an Ethernet address for port 1. (Symbol recommends that port 1 be used for connection to Access Ports.)
   ```
   ethernet 1
   ipaddress dhcp disable
   ipaddress 1.1.1.1 255.255.255.0
   ```
7. If not already configured, configure an Ethernet address for port 2. For a static IP address:
   ```
   ethernet 2
   ipaddress dhcp disable
   ipaddress <ip_address> <net_mask>
   ```
8. To enable a DHCP:
   ```
   ethernet 2
   ipaddress dhcp enable
   ```
9. To enable configuring the switch via a telnet session:
   ```
   telnet enable
   ```

Installing Software

If a new software image is required, use the following procedure to upgrade a WS5000 series wireless switch. The following are required to complete this procedure:

- TFTP server containing the Symbol software upgrade.
- The wireless switch must have access to the TFTP server via Ethernet port 2.

For detailed information regarding software installation please refer to the *WS5000 Series System Reference*.

Configuring the Switch from the Default Configuration

All of the steps below assume that the user is logged in to the WS5100/WS5000 series switch via the console interface. The GUI may also be used (instructions are included later in this document).

1. Create a Spectralink Phone classifier (from the prompt **WS5000.(Cfg)>**):
   ```
   WS5000.(Cfg)> ce
   ```
   If **Spectra_Link_Phone** is not present it needs to be created:
   ```
   WS5000.(Cfg).CE> add Spectralink_Phone
   WS5000.(Cfg).CE> addmc protocol 119
   ```
2. Create a Classification Group (from the prompt **WS5000.(Cfg)>**):
   ```
   WS5000.(Cfg)> cg
   ```
   If **Spectralink_Group** is not present it needs to be created:
   ```
   WS5000.(Cfg).CG> add SpectralinkGroup
   WS5000.(Cfg).CG.[SpectralinkGroup]> set addce Spectralink_Phone
   ```
3. Create an Output Policy (from the prompt **WS5000.(Cfg)>**):
   ```
   WS5000.(Cfg)> po
   ```
   If **Spectralink Output Policy** is not present it needs to be created:
   ```
   WS5000.(Cfg).PO> add SpectraLinkOutput 1
   WS5000.(Cfg).PO.[SpectraLinkOutput]> set addcg SpectralinkGroup
   ```

```
WS5000.(Cfg).PO.[SpectraLinkOutput]> set cgtxprofile voice
SpectralinkGroup
WS5000.(Cfg).PO.[SpectraLinkOutput]> set cgpktmod tos enable
Spectralink_Group
WS5000.(Cfg).PO.[SpectraLinkOutput]> set cgwfq 70 Spectralink_Group
```

4. Create a Network Policy (from the prompt **WS5000.(Cfg)>**):

```
WS5000.(Cfg)> np
WS5000.(Cfg).NP> add SpectralinkNetwork
WS5000.(Cfg).NP.[SpectralinkNetwork]> set outboundpolicy
SpectralinkOutput
```

5. Create a Security Policy (from the prompt **WS5000.(Cfg)>**):

```
WS5000.(Cfg)> security
WS5000.(Cfg).SecurityPolicy> add WPA2
WS5000.(Cfg).SecurityPolicy.[WPA2]> set encryption ccmp enable
```

Note: This command is followed by prompts to enter the type of authentication (EAP vs. pre-shared key) and information about the key. NetLink Wireless Telephones only support pre-shared key (PSK) for WPA and WPA2 security.

6. Create a WLAN Policy (from the prompt **WS5000.(Cfg)>**):

```
WS5000.(Cfg)> wlan
WS5000.(Cfg).WLAN> add SpectralinkWLAN <essid>
WS5000.(Cfg).WLAN.[SpectralinkWLAN]> set security WPA2
```

7. Create an AP Policy (from the prompt **WS5000.(Cfg)>**):

```
WS5000.(Cfg)> appolicy
WS5000.(Cfg).APPolicy> add SpectralinkAP
WS5000.(Cfg).APPolicy.[SpectralinkAP]> set supportedrates B none
WS5000.(Cfg).APPolicy.[SpectralinkAP]> set basicrates B 1,2,5.5,11
WS5000.(Cfg).APPolicy.[SpectralinkAP]> set dtim 3
WS5000.(Cfg).APPolicy.[SpectralinkAP]> add SpectralinkWLAN
WS5000.(Cfg).APPolicy.[SpectralinkAP]> set np SpectralinkNetwork
SpectralinkWLAN
```

8. Create an Ethernet Policy:

```
WS5000.(Cfg)> etherpolicy
WS5000.(Cfg).EtherPolicy> add SpectralinkEthernet
```

9. Create a Switch Policy:

```
WS5000.(Cfg)> switch
WS5000.(Cfg).SPolicy> add SpectralinkSwitch
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set channel 36 a
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set channel 1 B
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set channel 1 G
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set etherpolicy
SpectralinkEthernet
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set appolicy SpectralinkAP
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set countrycode US
```

```
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> end
WS5000.(Cfg).SPolicy> end
WS5000.(Cfg)> set switchpolicy SpectralinkSwitch
```

10. Configure the Ethernet Ports:

```
WS5000.(Cfg)> ethernet
WS5000.(Cfg).Ethernet> 1
WS5000.(Cfg).Ethernet.[1]> ipaddress 1.1.1.1 255.255.255.0
WS5000.(Cfg).Ethernet.[1]> end
WS5000.(Cfg).Ethernet> 2
WS5000.(Cfg).Ethernet.[2]> ipaddress dhcp disable
WS5000.(Cfg).Ethernet.[2]> ipaddress 10.3.0.47 255.0.0.0
```

11. Configure an Access Port:

```
WS5000.(Cfg)> accessport

Access Ports           Radio MAC          Device MAC         Type  Status
---------------------  -----------------  -----------------  ----  -----------
00:A0:F8:CD:EE:54 [G]  00:A0:F8:C0:38:8C  00:A0:F8:CD:EE:54   G    Unavailable
00:A0:F8:CD:EE:54 [A]  00:A0:F8:C0:44:BC  00:A0:F8:CD:EE:54   A    Unavailable
00:A0:F8:CD:EE:4D [G]  00:A0:F8:C0:38:60  00:A0:F8:CD:EE:4D   G    Unavailable
00:A0:F8:CD:EE:4D [A]  00:A0:F8:CD:DA:BC  00:A0:F8:CD:EE:4D   A    Unavailable

No. of Active Access Ports/Radios: 0/0
WS5000.(Cfg).APort> port "00:A0:F8:CD:EE:54 [G]"
WS5000.(Cfg).APort.[00:A0:F8:CD:EE:54 [G]]> set policy SpectralinkAP
WS5000.(Cfg).APort.[00:A0:F8:CD:EE:54 [G]]> set name Channel3_388c
WS5000.(Cfg).APort.[Channel3_388c]> set channel 3
```

12. Save the Configuration:

```
WS5000.(Cfg)> end
WS5000> save config example.cfg
```

GUI Configuration Session

The screen shots below provide configuration information via Symbol's GUI and are consistent with the configuration used during VIEW testing with two exceptions:

- 802.1Q tagging (e.g. a trunk interface for Ethernet 2) was not utilized.
- AP adoption was not used or tested.

Note: Symbol CLI and GUI interfaces are opposites in terms of how they approach the configuration process. The CLI commands described previously starts with the lower level policies (e.g. Phone Classification) and works up where the Switch Policy is the last policy completed. The GUI screens in this section work the process in the opposite direction starting with the Switch Policy. Finally, the GUI screens make use of certain SpectraLink Policies provided by Symbol.

Establishing a connection to the Web Interface

HTTP connections are disabled by default. Utilize ssl to connect by preceding the IP address or dns name with https:// or disable ssl to connect via http.

To disable ssl via a console connection:

```
WS5000> config ssl
WS5000.(Cfg).SSL> disable
```

Access the web interface by entering the IP address of the switch. Precede the address with either https:// for ssl connection or http:// for http connection.

Switch Policy

1. Log onto the switch with the proper User ID and Password.

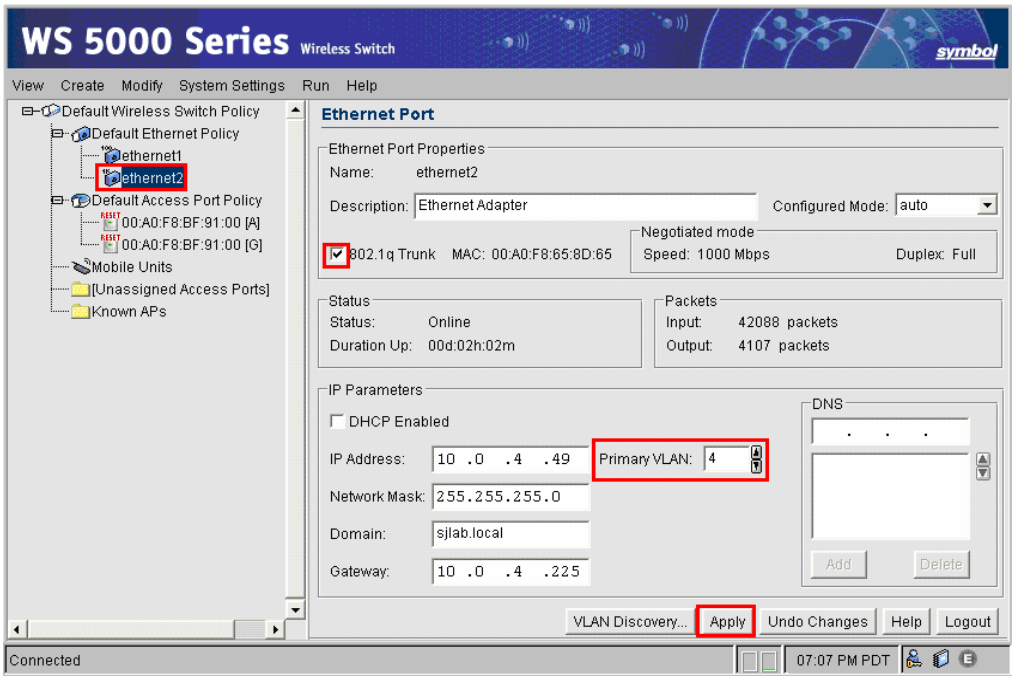

Figure 4: Configuring Ethernet 2 as a trunk port

2. Highlight **Ethernet 2**, check the **802.1QTrunk**, select the **Primary VLAN** then click **Apply**. Note: The Primary VLAN is dictated by the connecting wired switches port settings. In this example the connected ports native VLAN is 4. The Primary VLAN will vary based on your installation.
3. Click **OK** in the Ethernet Port settings change confirmation dialog box.

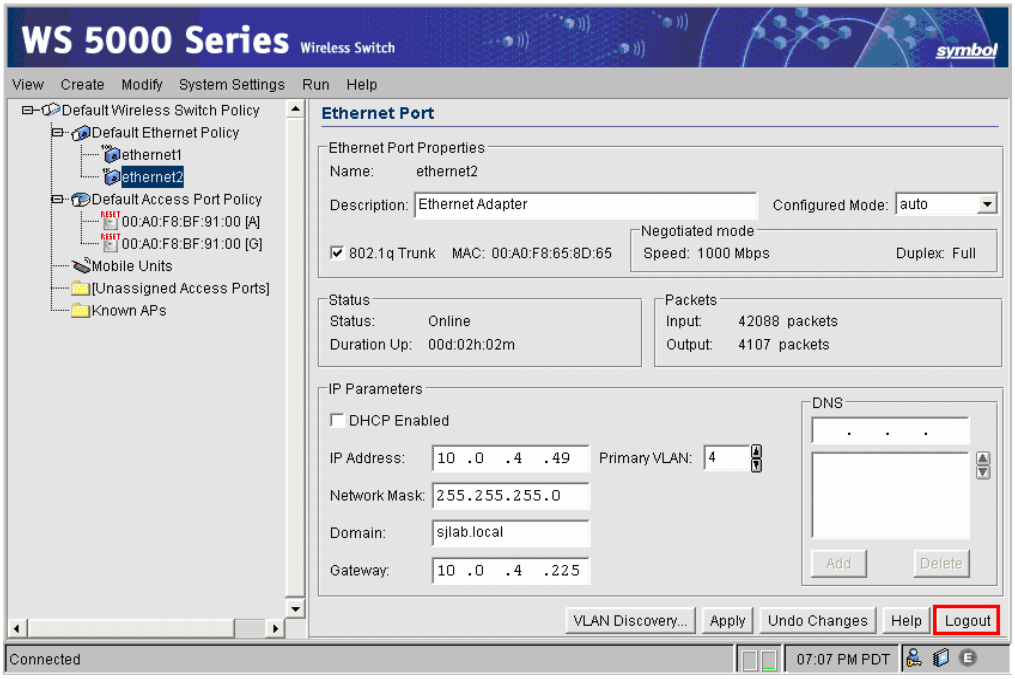

Figure 5: Ethernet port configured as a trunk before log off

4. Log out of the switch to reflect the trunk port settings.
5. Click **OK** to log out.
6. Completely close your browser.
7. Log back into the switch.

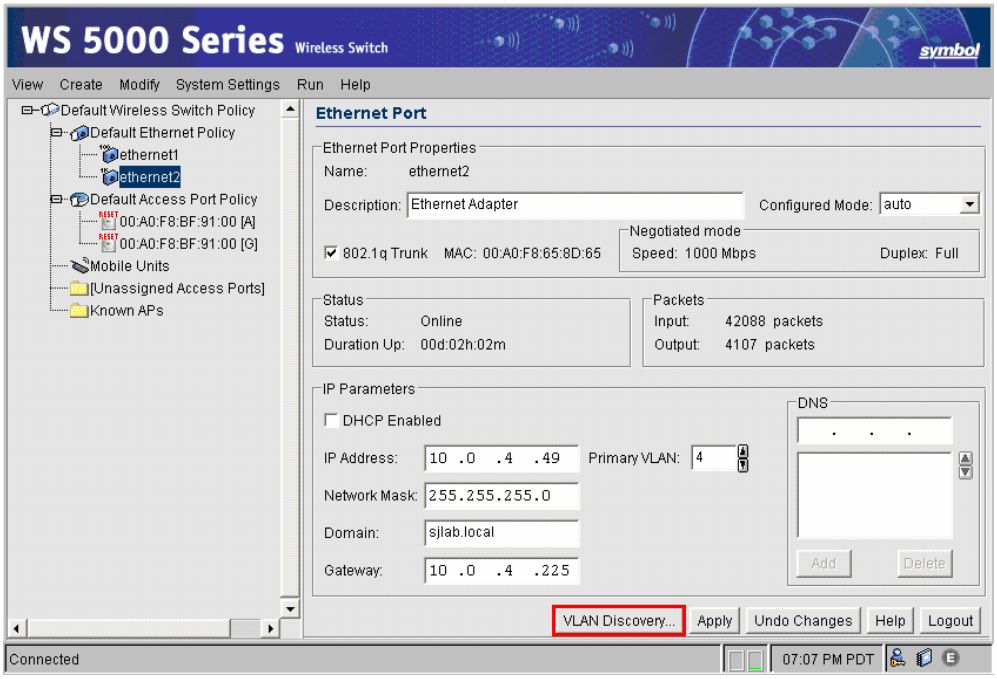

Figure 6: Ethernet 2 configuration screen

8. Click **VLAN Discovery**.

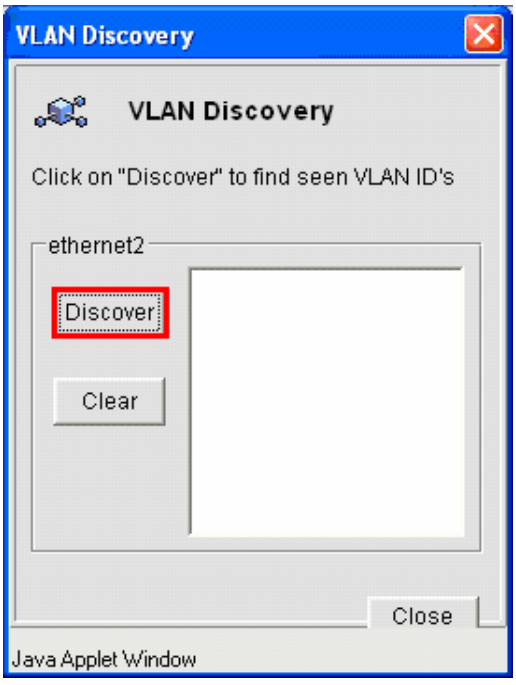

Figure 7: VLAN Discovery prior to Discovery

9. Click **Discover**.
10. Click **Close**.

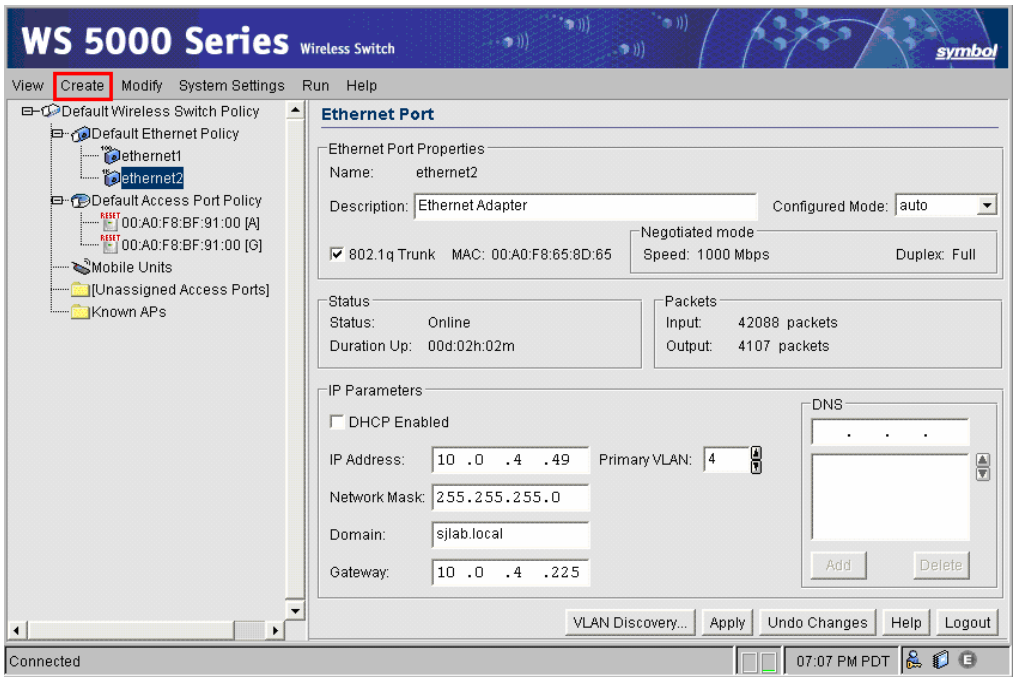

Figure 8: WS5000 ready to create the Wireless Switch policy

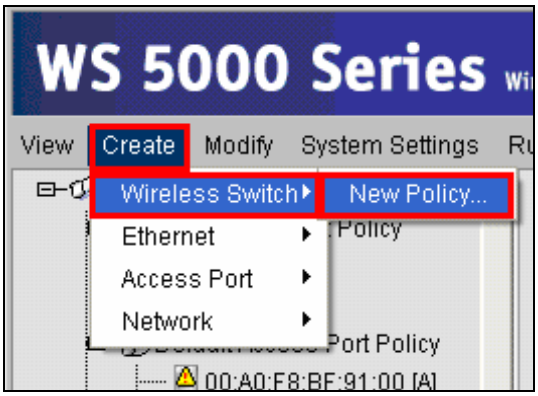

Figure 9: Creating the Wireless Switch policy

11. Click **Create**, **Wireless Switch**, **New Policy**.

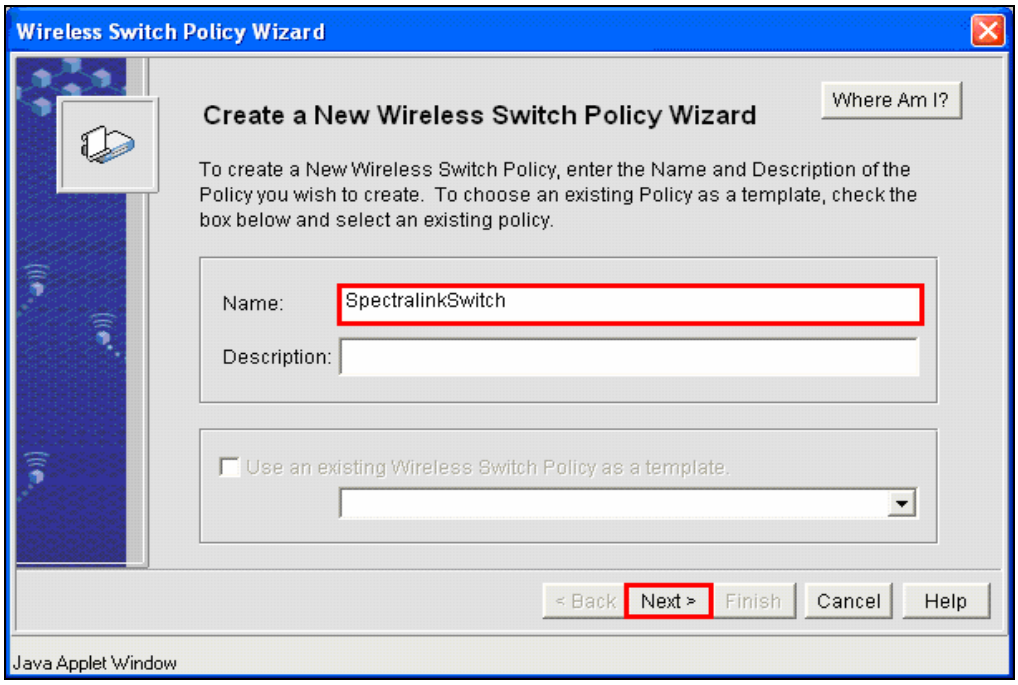

Figure 10: Naming the Wireless Switch Policy

12. Name the Wireless Switch Policy.

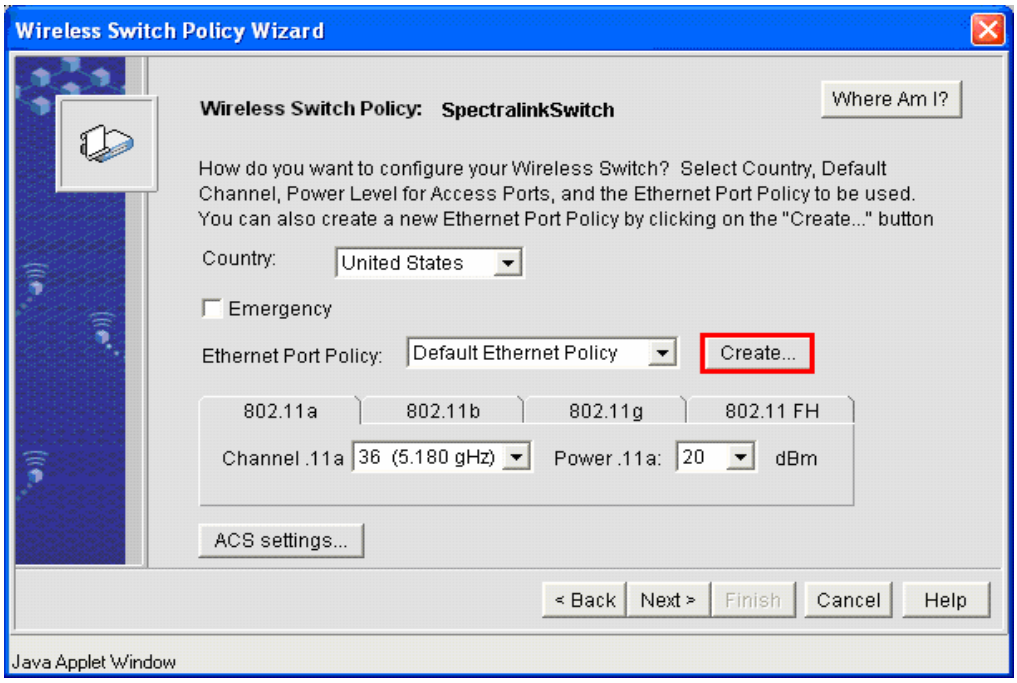

Figure 11: Create the Ethernet Port Policy

13. Click **Create**.

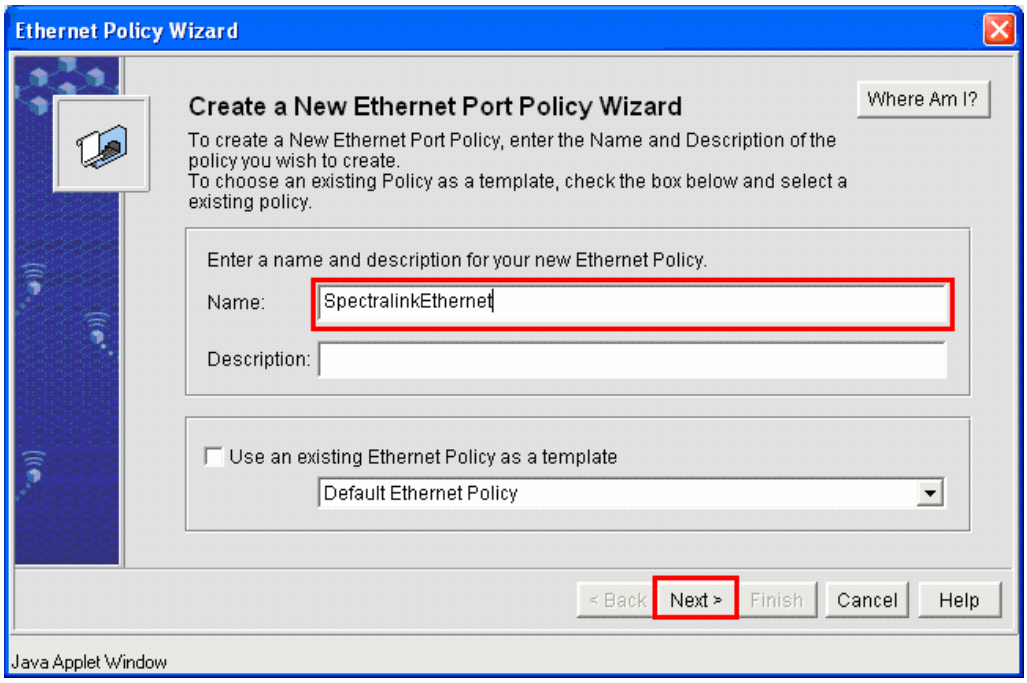

Figure 12: Name the Ethernet Port Policy

14. Name the Ethernet Port Policy and click **Next**.

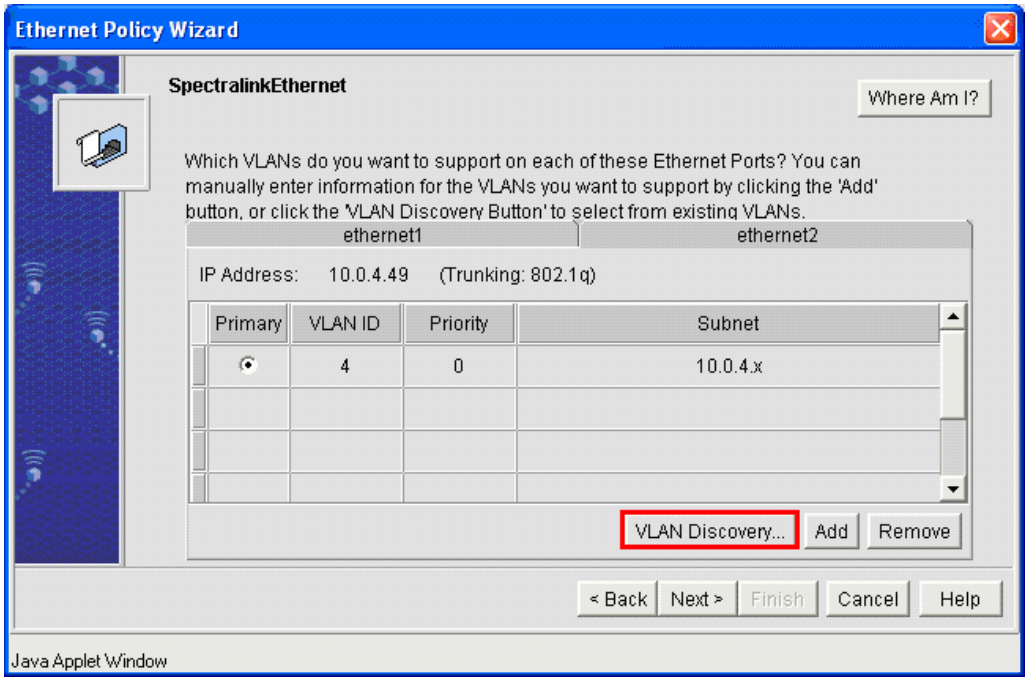

Figure 13: Establishing VLAN to WLAN mappings

15. Click **VLAN Discovery.**

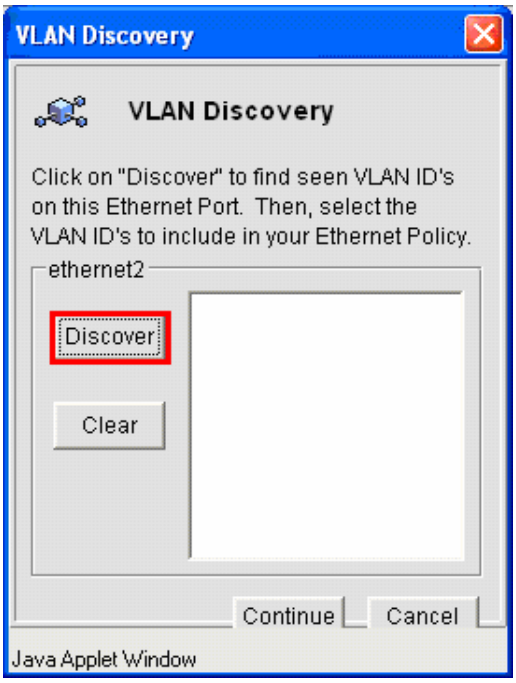

Figure 14: VLAN Discovery applet

16. Click **Discover**.
17. Click **Continue**.

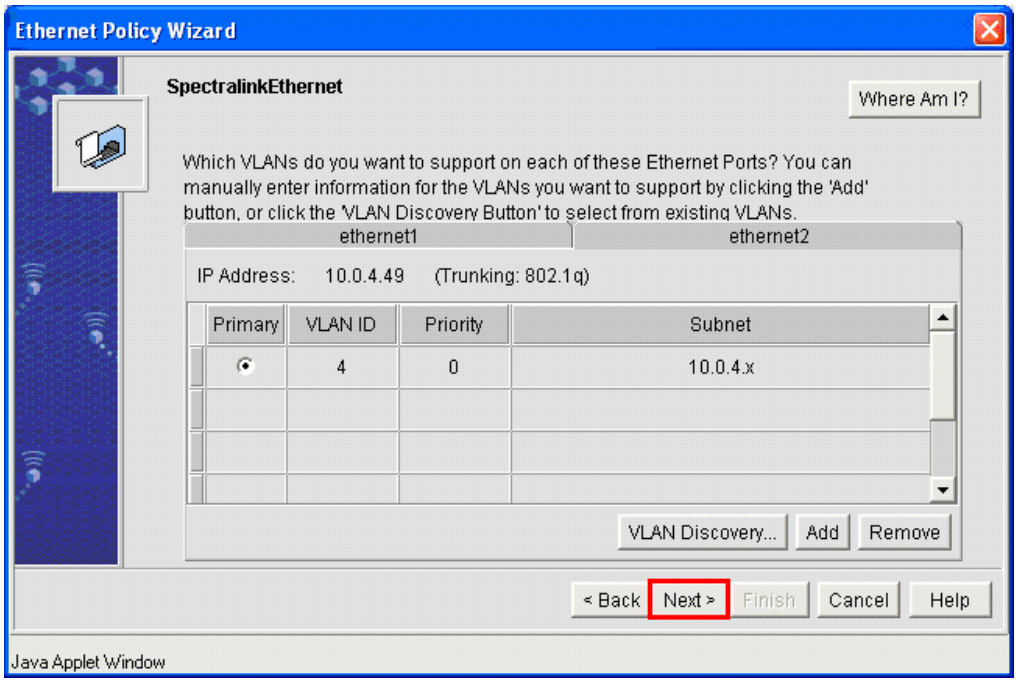

Figure 15: Ethernet Port policy, continued

18. Click **Next**.

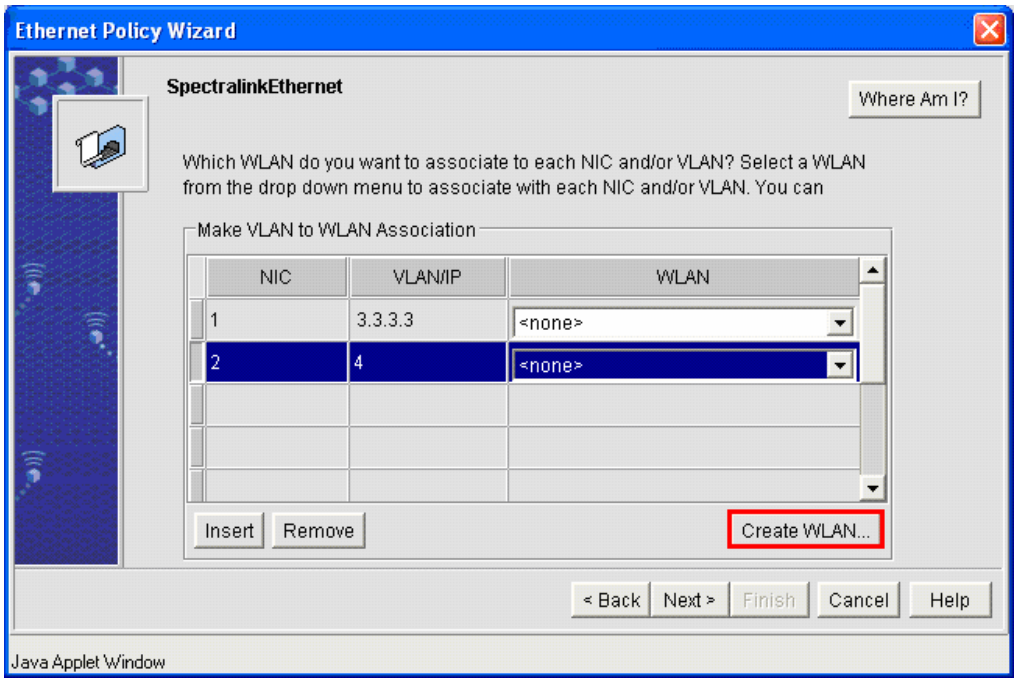

Figure 16: Ethernet Port Policy Wizard Creating the WLAN

19. Click **Create WLAN**.

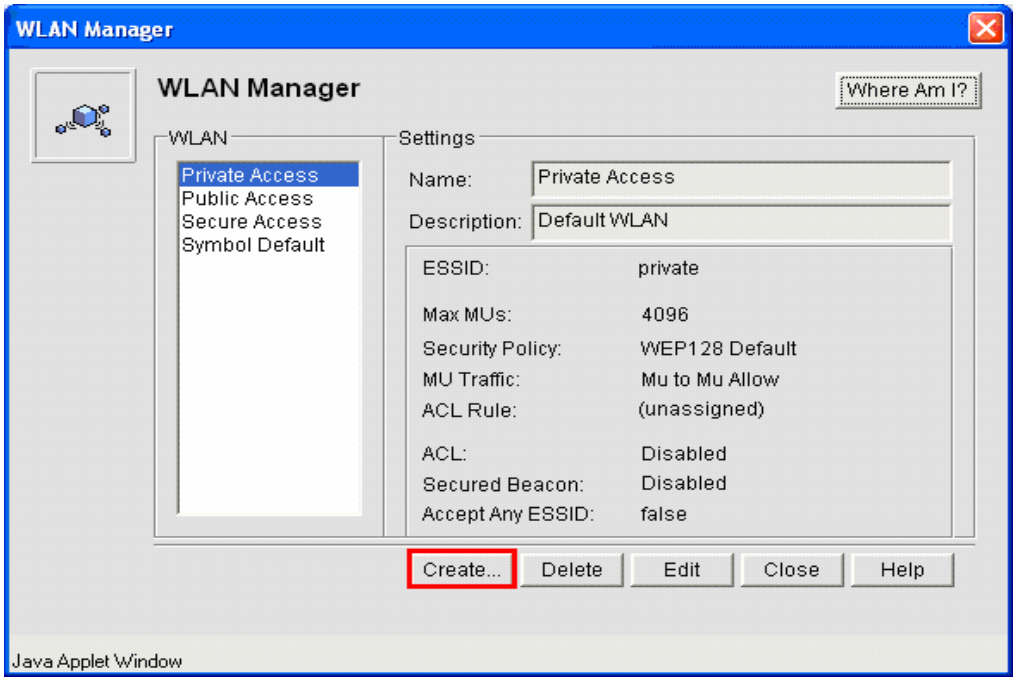

Figure 17: WLAN Manager

20. Click **Create.**

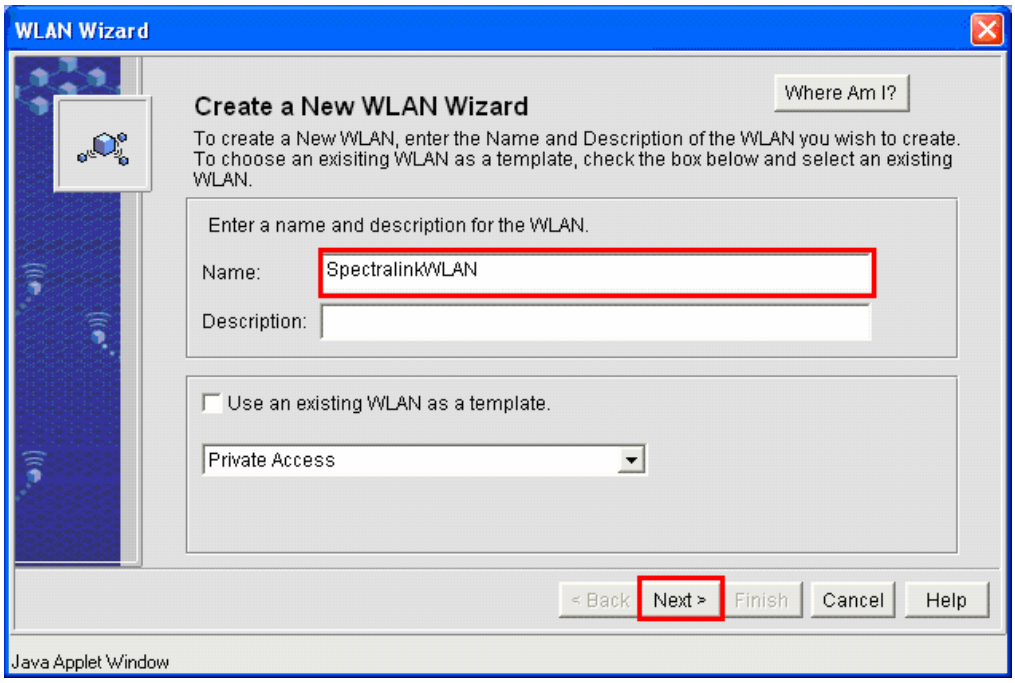

Figure 18: WLAN Wizard

21. Name the **WLAN** and click **Next**.

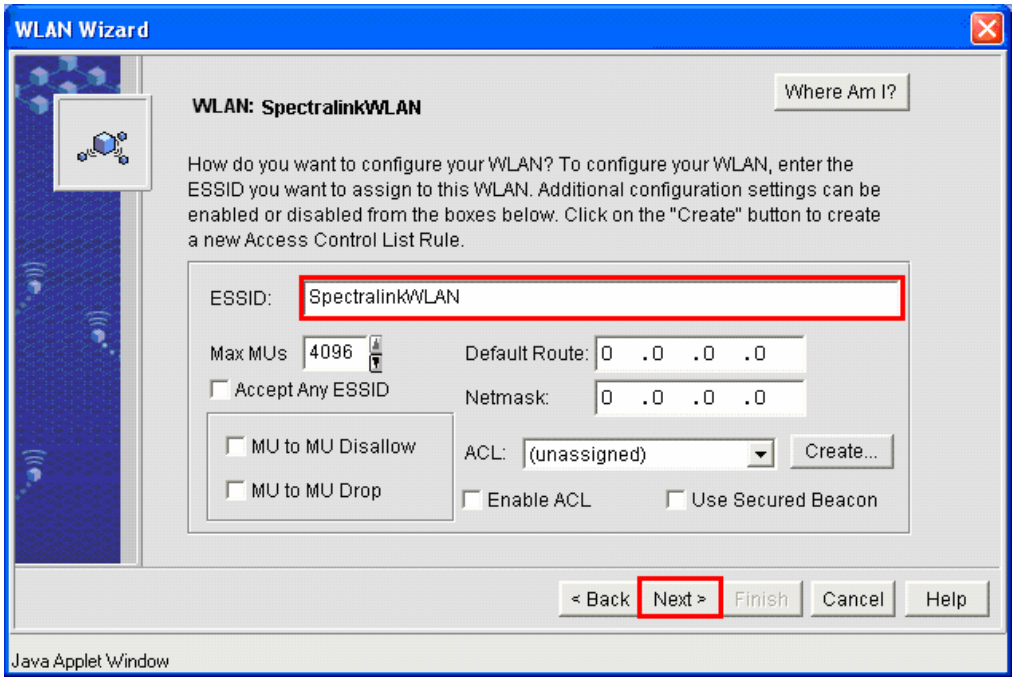

Figure 19: Adding an ESSID to a WLAN

22. Give the **WLAN** an **ESSID** and click **Next**.

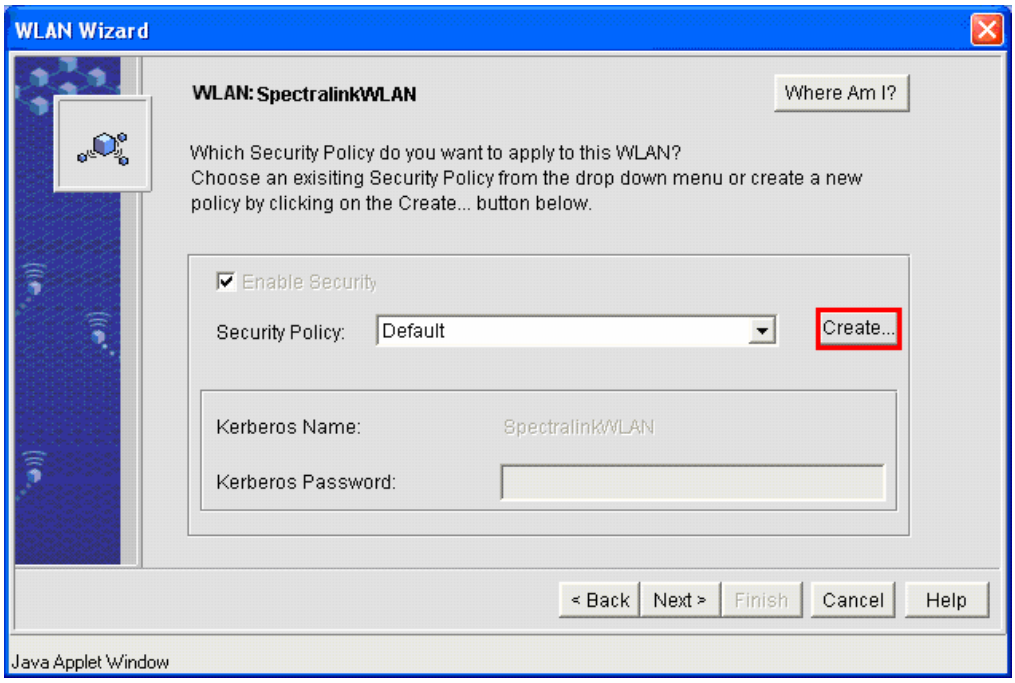

Figure 20: WLAN Wizard
initiating the creation of the Security policy to be used

23. Click **Create**.

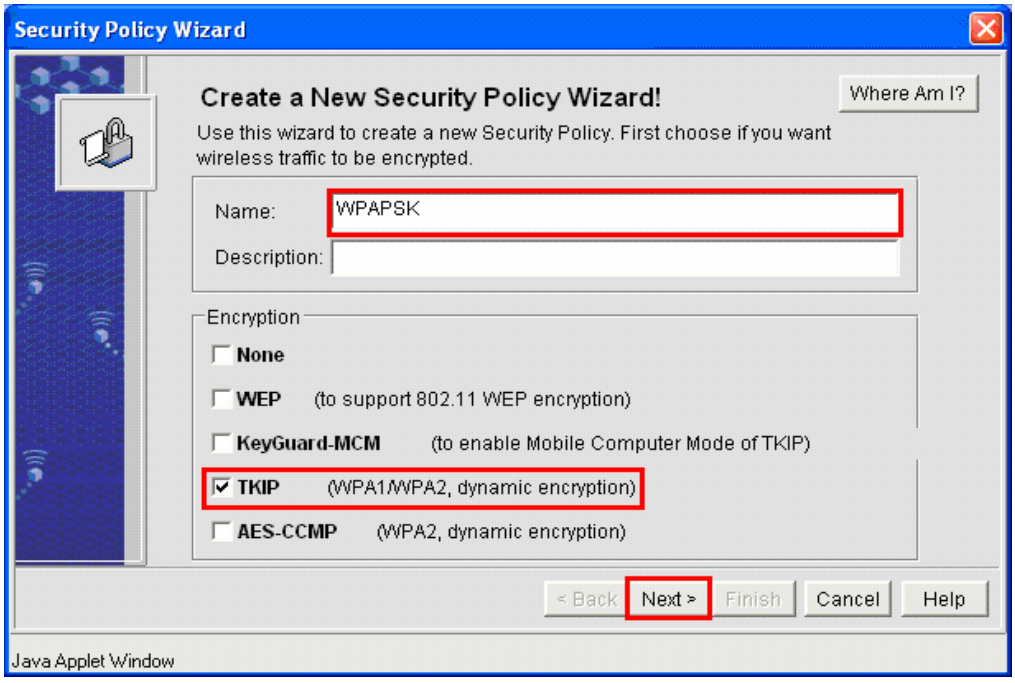

Figure 21: Naming the Security Policy

24. Name the Security Policy; choose the encryption method that meets your organization's security requirements and click **Next**.

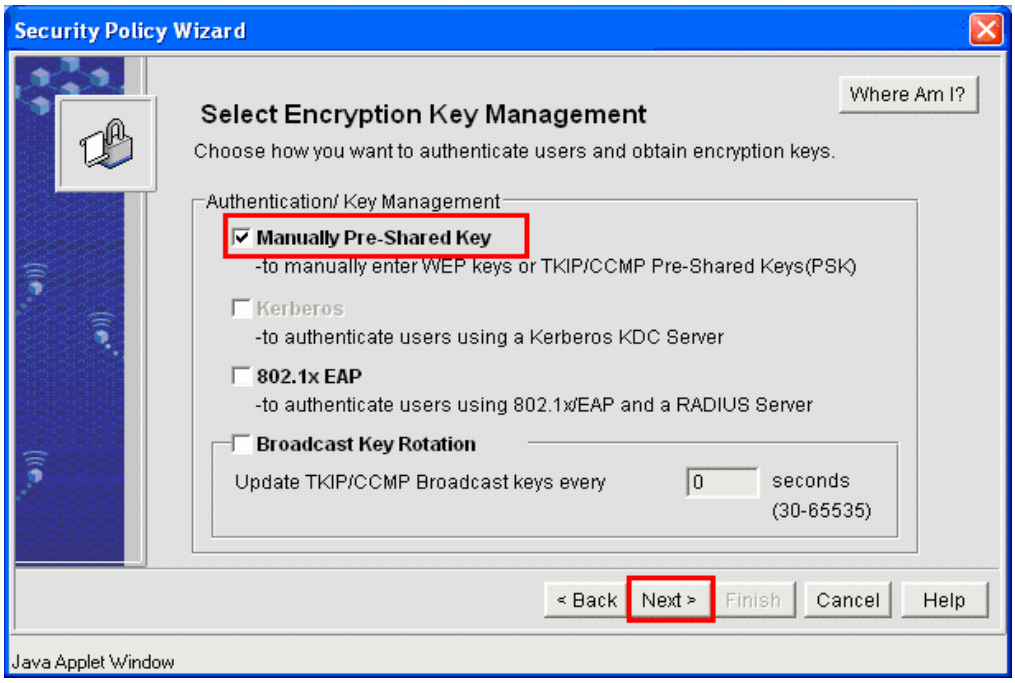

Figure 22: Encryption manager selecting PSK

25. Check the appropriate **Key Management** and click **Next**.

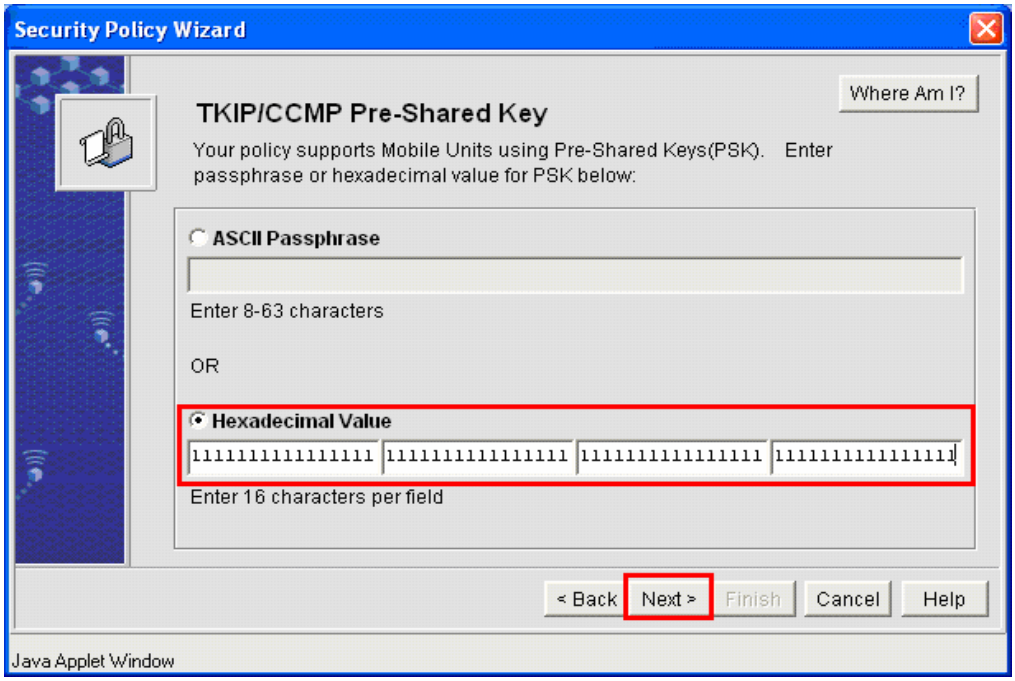

Figure 23: Adding the Pre-Shared Key

26. Add the appropriate **Hexadecimal Value**.
27. Click **Finish**.

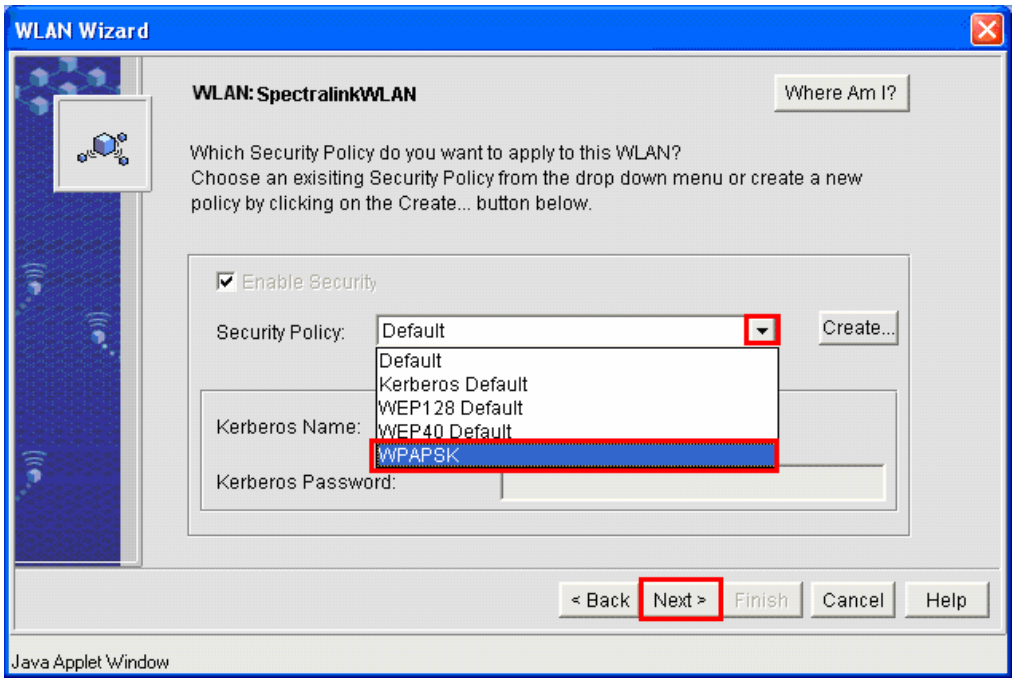

Figure 24: Selecting the newly created Security Policy

28. Click the down arrow next to the **Security Policy**; select the newly created Security Policy and click **Next**.

29. Click **Finish**.

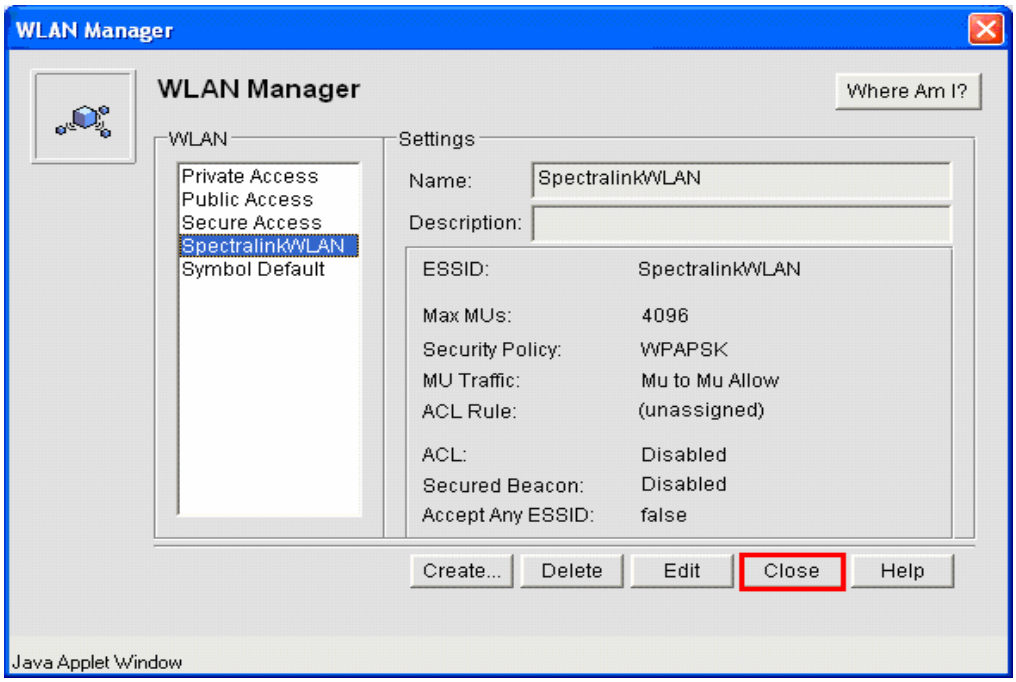

Figure 25: Finished Creating the WLAN

30. Click **Close**.

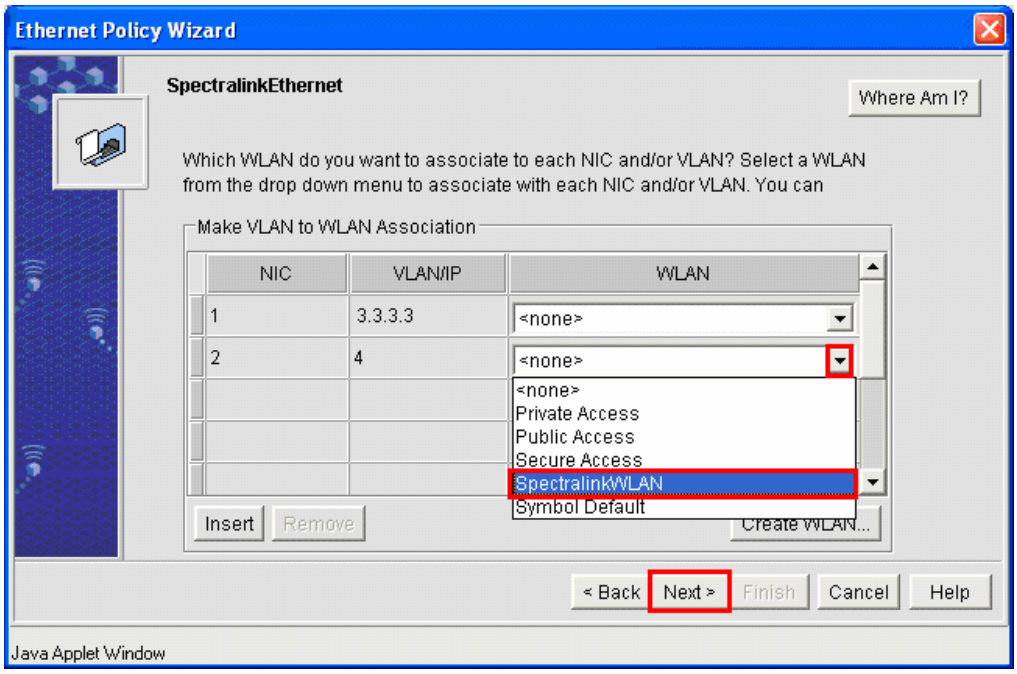

Figure 26: Mapping the newly created WLAN to the wired VLAN

31. Click the down arrow for **NIC 2**; select the newly created **WLAN** and click **Next**.
32. Click **Finish**.
33. Click **OK** in **Ethernet Policy** completion information dialog box

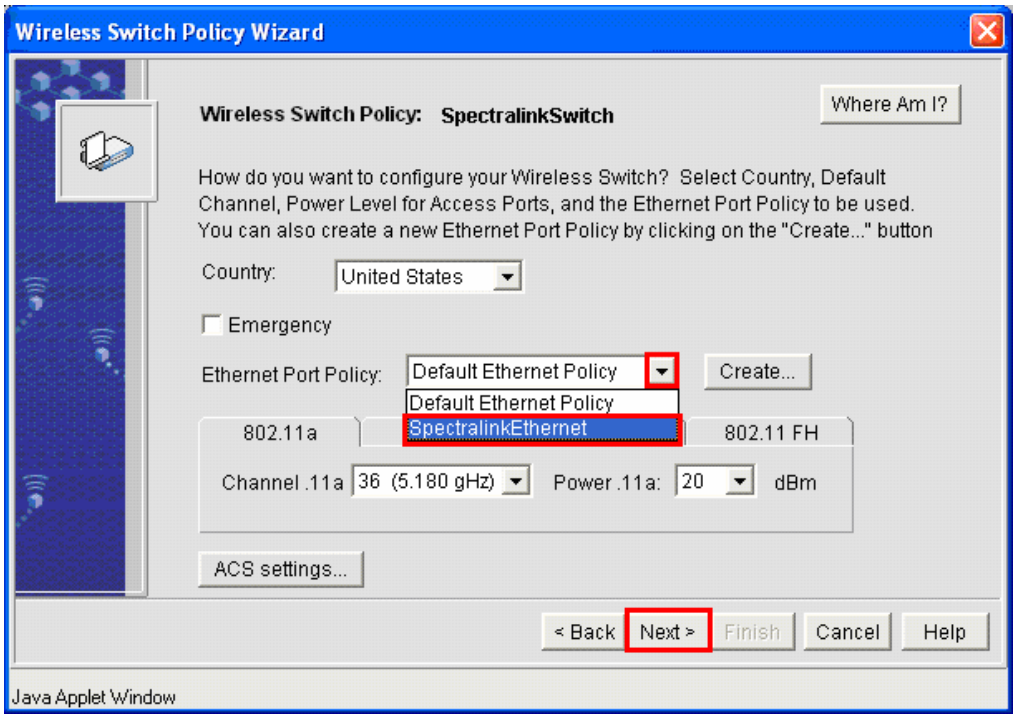

Figure 27: Adding the newly created Ethernet Port Policy to the Wireless Switch Policy

34. Click the down-arrow next to the **Ethernet Port Policy**; select and click the newly created **Ethernet Port Policy**; click **Next**.

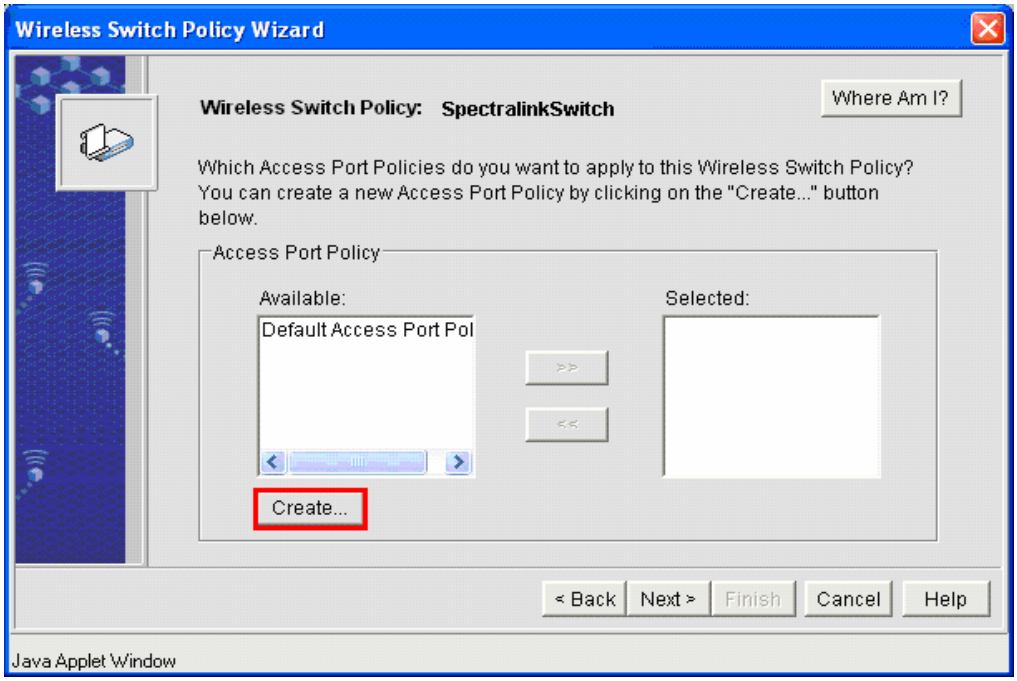

Figure 28: Creating the Access Port Policy

35. Click **Create**.

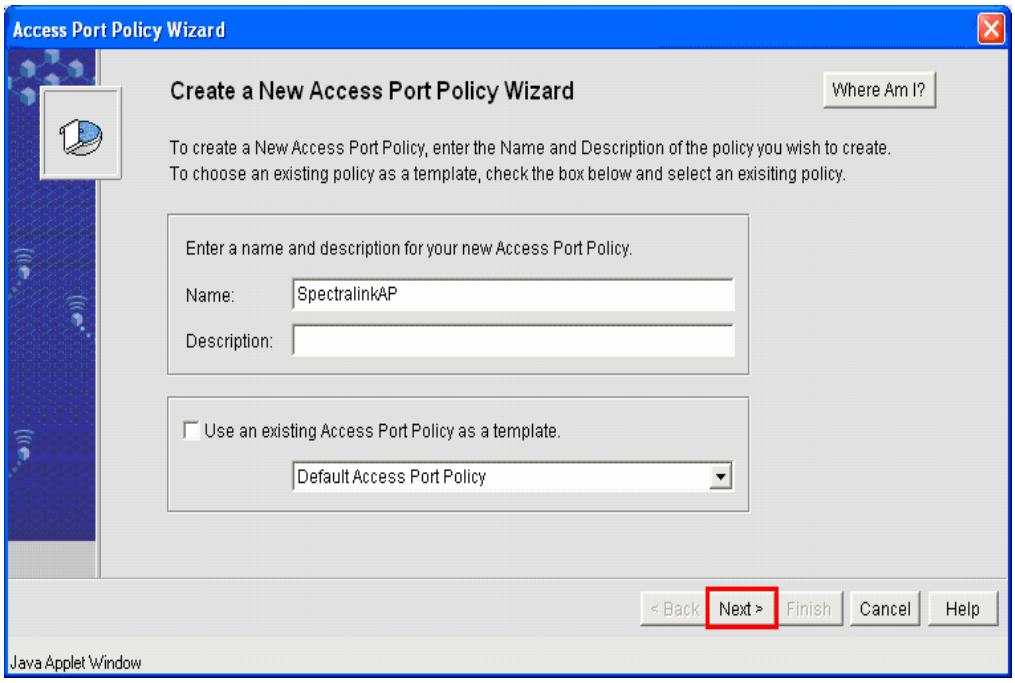

Figure 29: Naming the Access Port Policy

36. Name the **Access Port Policy**; click **Next**.

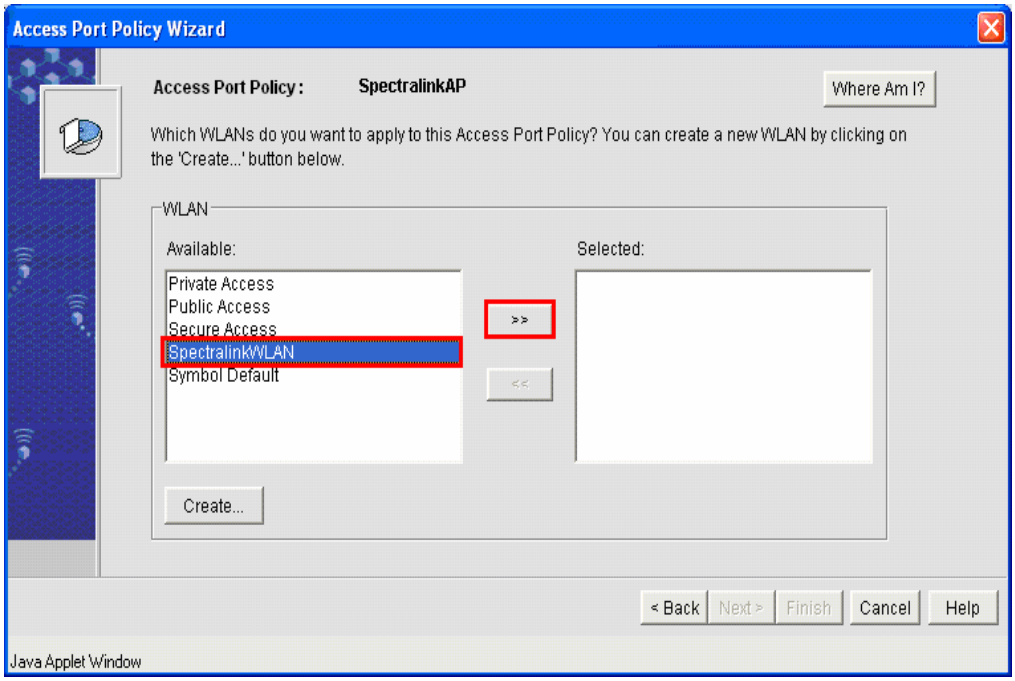

Figure 30: Adding the newly created WLAN to the Access Port Policy

37. Select the newly created **WLAN**; click **>>**.
38. Click **Next**.

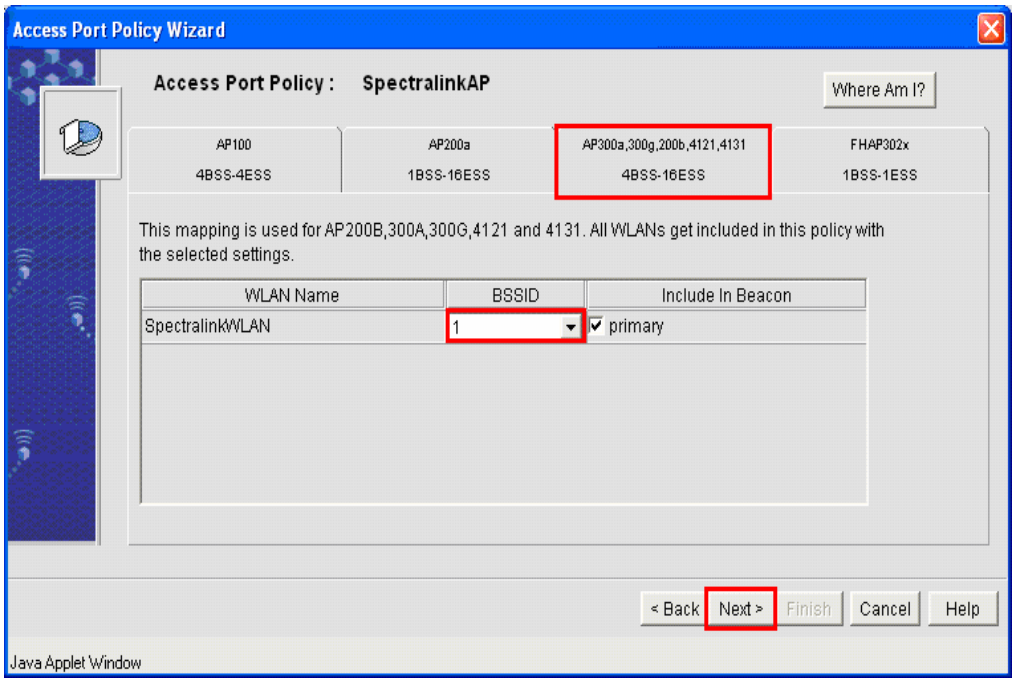

Figure 31: Mapping ESSIDs to WLANS

39. Assign the newly created **WLAN** its own **ESSID**; click **Next**.

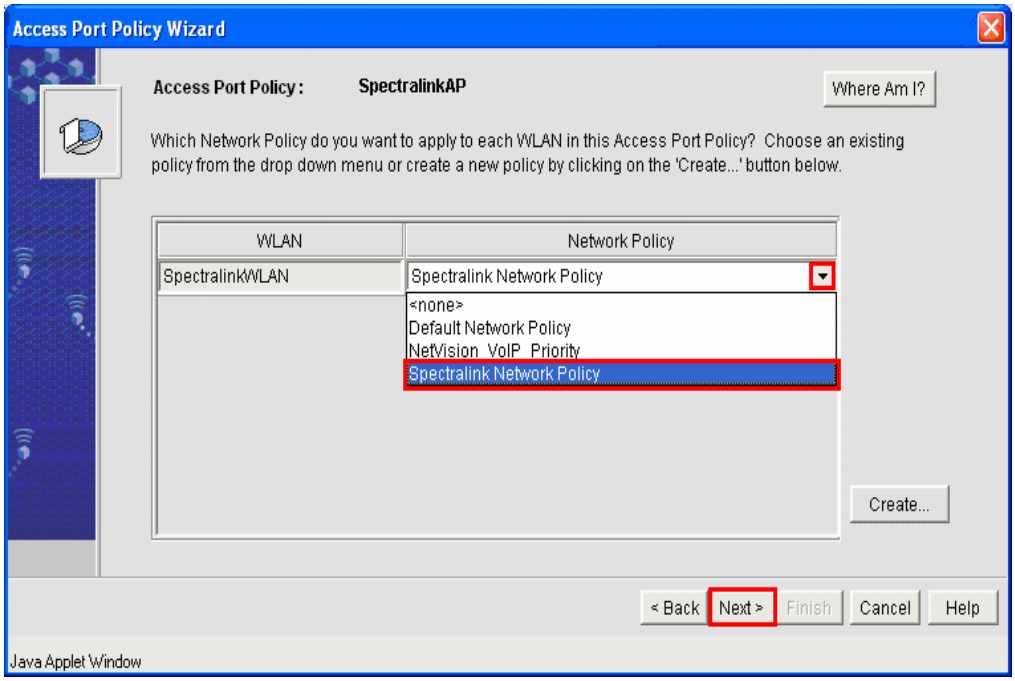

Figure 32: Adding a Network Policy to the SpectralinkWLAN

40. Click the down-arrow next to the **Spectralink WLAN**; highlight and click the **Spectralink Network Policy**; click **Next**.

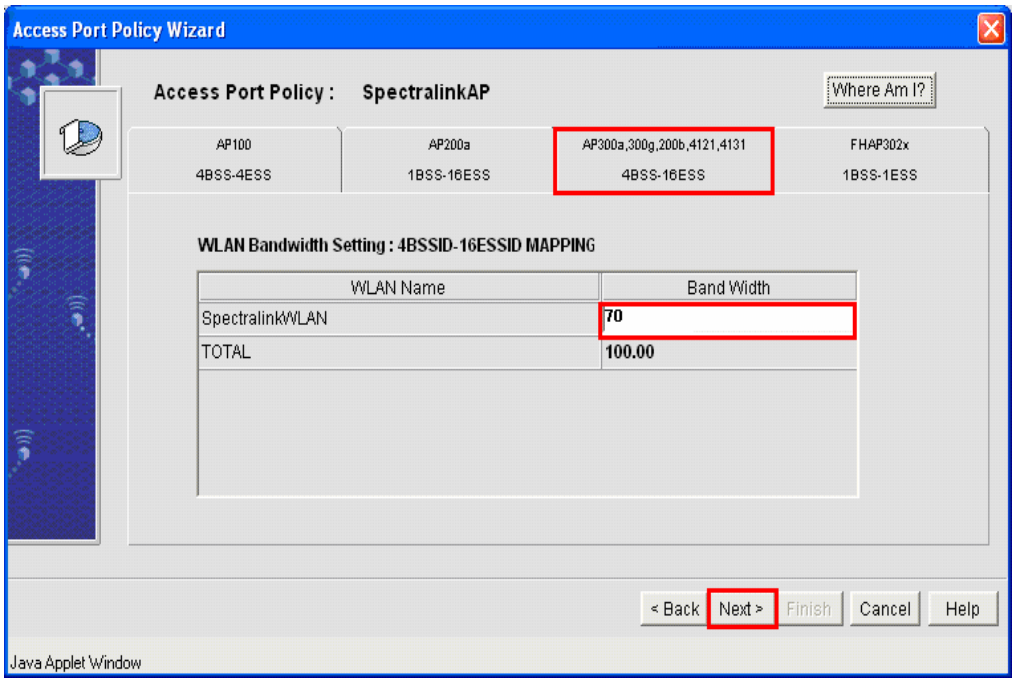

Figure 33: Assigning bandwidth to the SpectralinkWLAN

41. Click the **AP300a,300g,200b,4121,4131** tab; allocate **70** percent bandwidth to the **SpectralinkWLAN**; click **Next**.

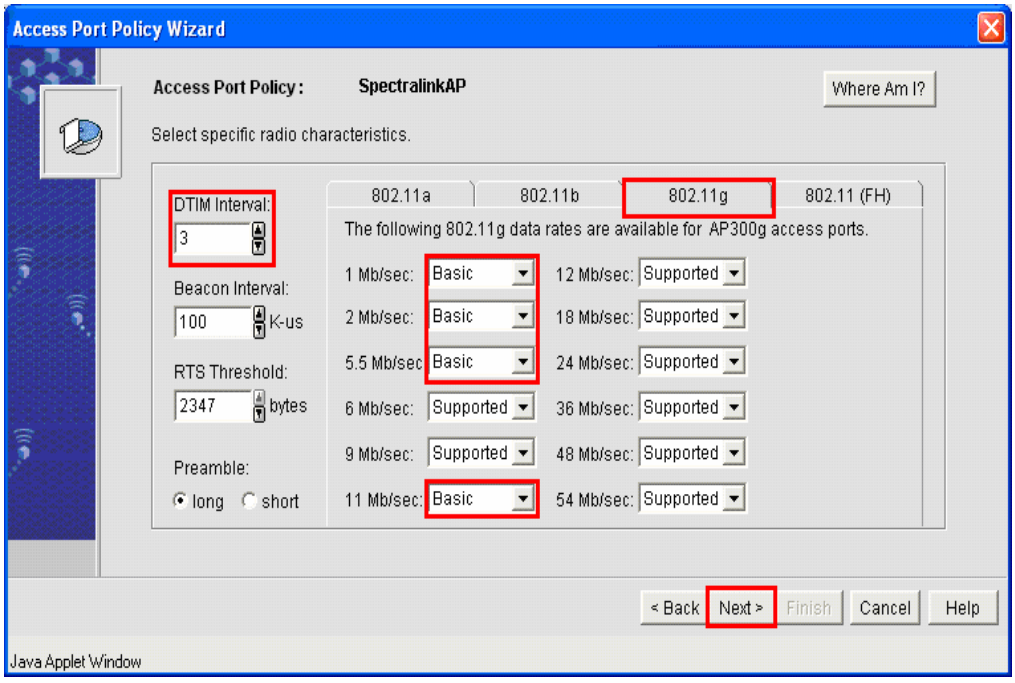

Figure 34: AP 300 settings

42. Click the **802.11g** tab, change the **DTIM** to **3**; leave the **1**, **2**, **5.5**, **11** rates at **Basic**, and others at **Supported**; **Beacon** and **RTS** should be left at the defaults of **100** and **2347** respectively; click **Next**.

43. Click **Finish**.

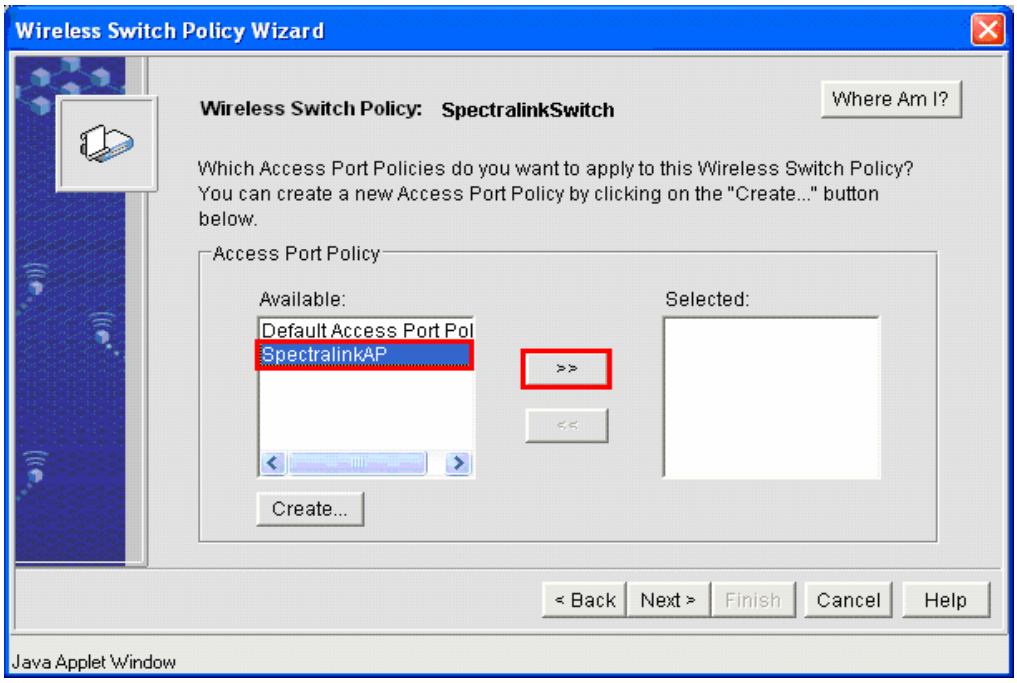

Figure 35: Adding the newly created Access Port Policy to the Wireless Switch Policy

44. Highlight the newly created **Access Port Policy**; click **>>**.

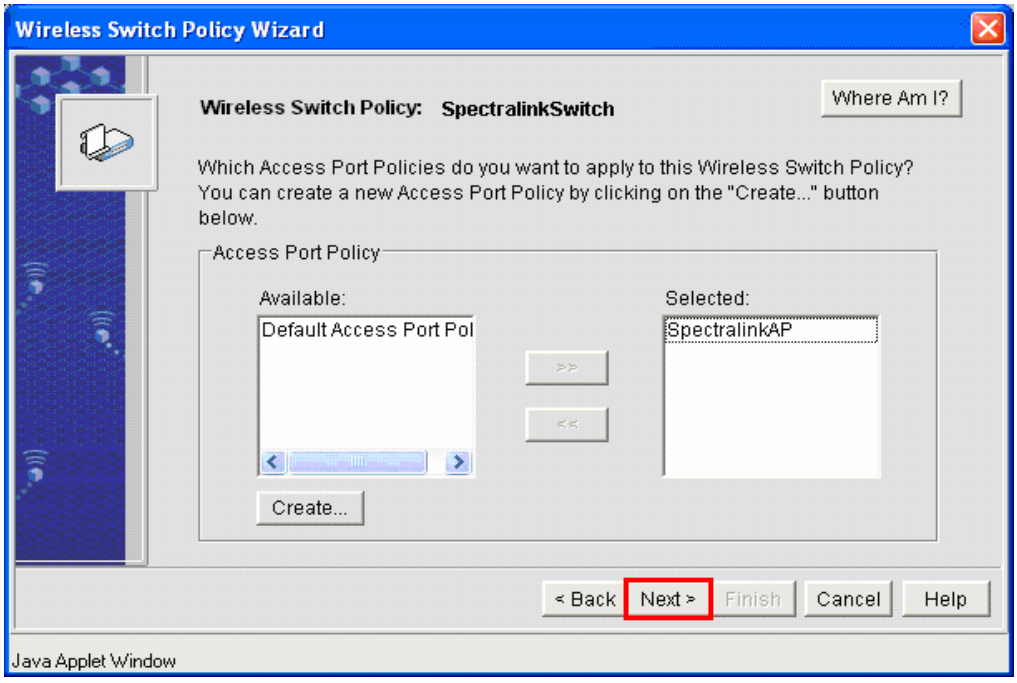

Figure 36: Finishing adding the Access Port Policy to the Wireless Switch Policy

45. Click **Next**.

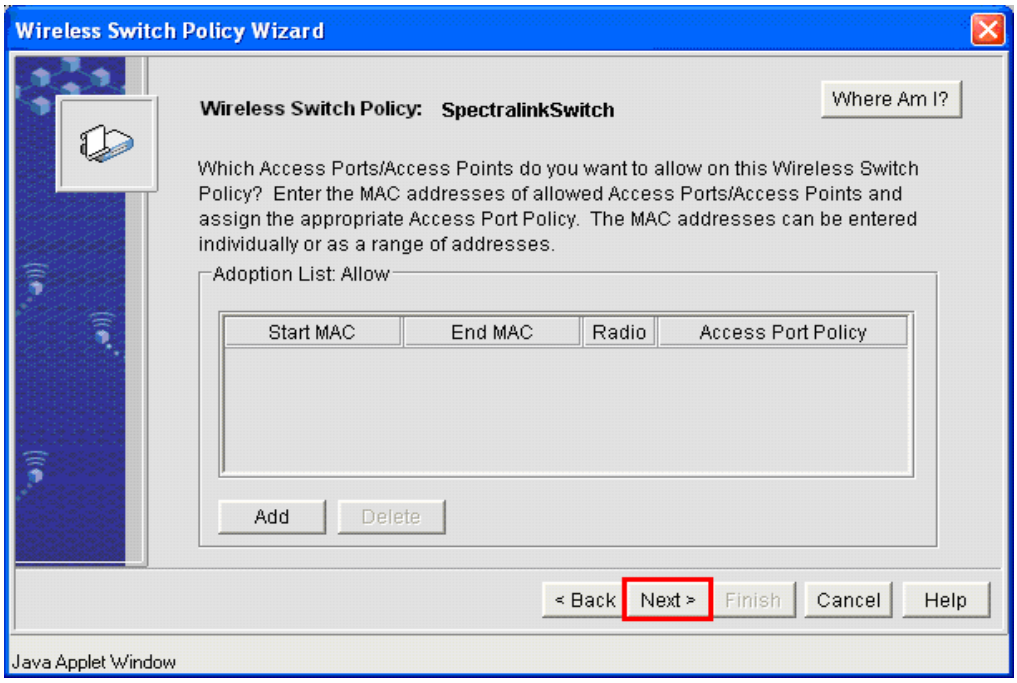

Figure 37: Wireless Switch adoption list allow

46. Click **Next**.

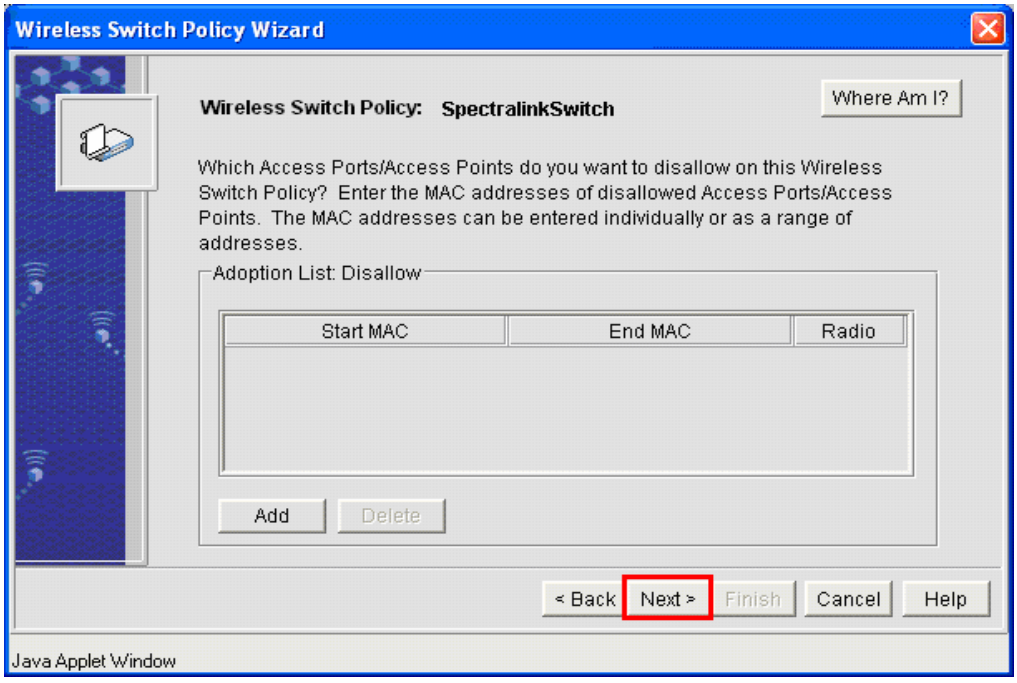

Figure 38: Wireless Switch adoption list disallow

47. Click **Next**.

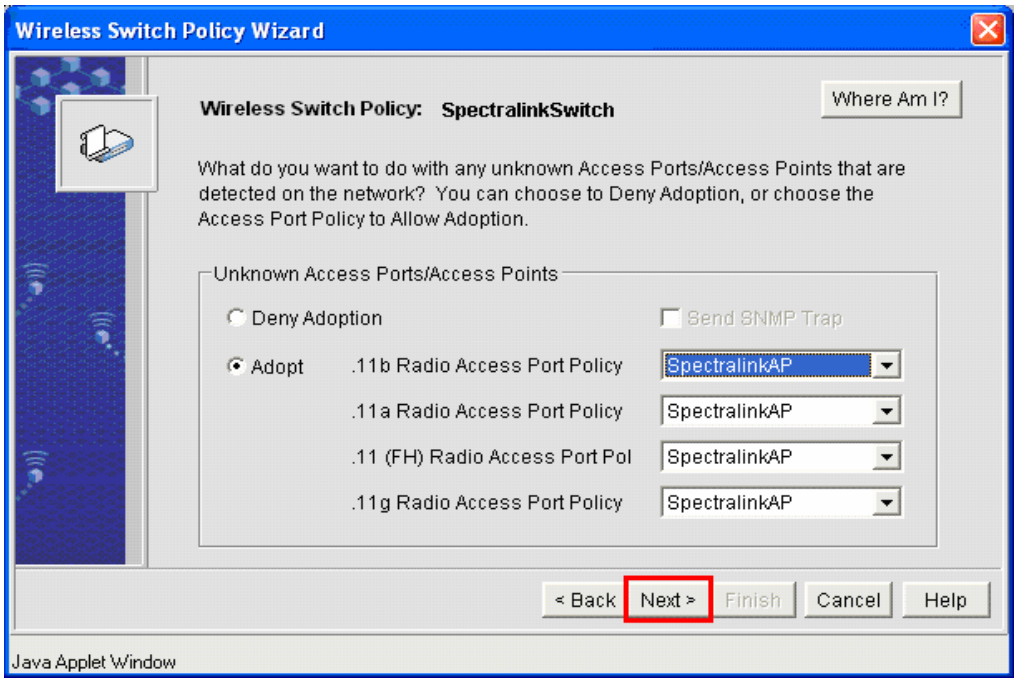

Figure 39: Default Access Port Policy that will be adopted by unknown access ports

48. Click **Next**.

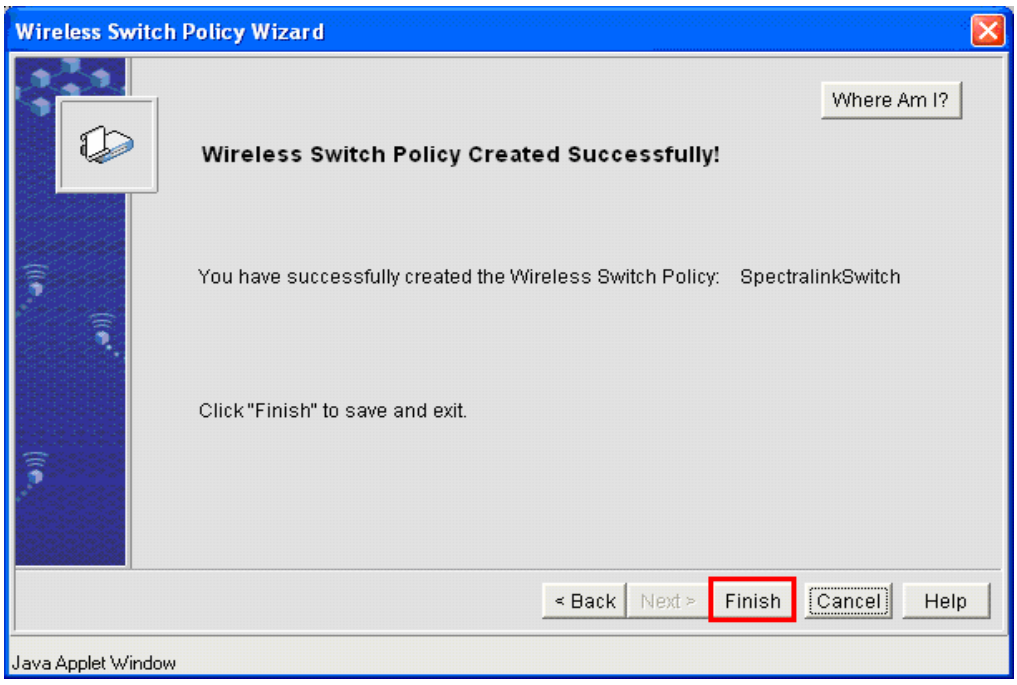

Figure 40: Wireless Switch Policy

49. Click **Finish**.

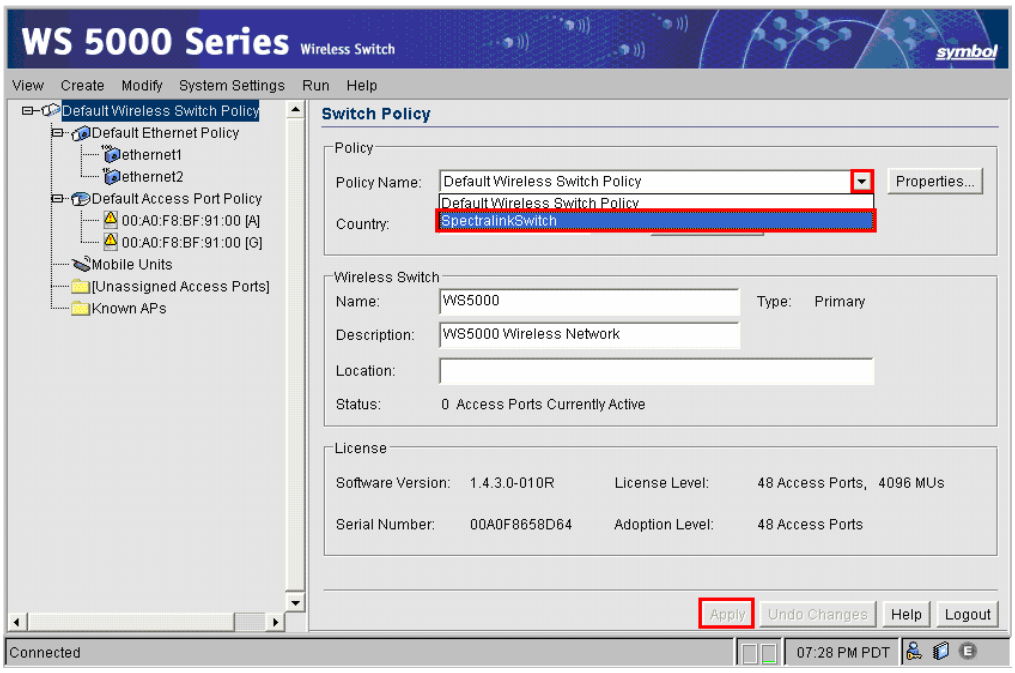

Figure 41: Activating the newly created Wireless Switch Policy

50. Click the down-arrow next to **Policy Name**; highlight and click the newly created Wireless Switch Policy; click **Apply**.

51. Click **OK** in the Wireless Switch Policy activation warning.

52. Click **OK** in the Wireless Switch Policy activation confirmation dialog box.

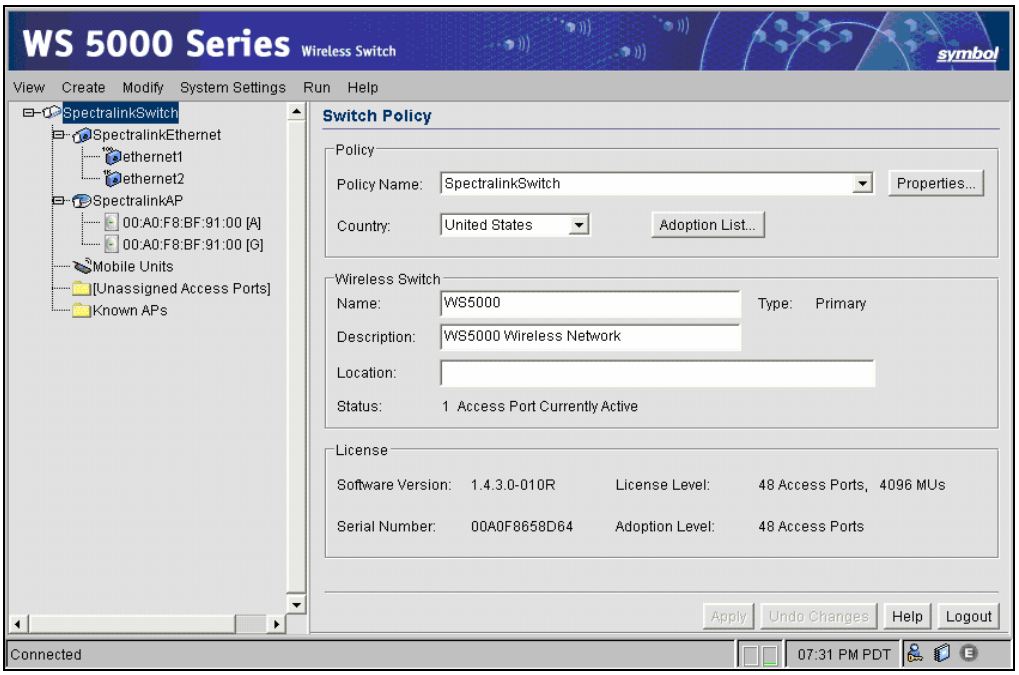

Figure 42: Finished

At this point the access ports connected should now adopt.

Configuration Console Session

The text below is a sample console session which creates the configuration that was used for the majority of VIEW Certification Testing.

```
cli
Symbol Wireless Switch WS 5000 Series.
Please enter your username and password to access the Command Line
Interface.

userid: admin
password: ******

Retrieving user and system information...
Setting user permissions flags..
Checking KDC access permissions...

Welcome...
Creating the Event list...
System information...

System Name                  : WS5000
Description                  : WS5000 Wireless Network
Switch Location              :
Software Ver.                : 1.4.3.0-007B
Licensed to                  : Symbol Technologies
Copyright                    : Copyright (c) 2000-2005. All rights reserved.
Serial Number                : 00A0F8658DD2
Number of Licenses           : 30
Max Access Ports             : 30
Max Mobile Clients           : 4096
Active Switch Policy         : Default Wireless Switch Policy
Emergency Switch Policy      : Not defined
Switch Uptime                : 00d:00h:07m
# of Unassigned Access Ports : 0

WS5000> cfg

WS5000.(Cfg)> ce
Classifier information...

Available Classifiers (CE):
     1. Ex HTTP Traffic.
     2. Ex Telnet Traffic.
     3. RTP_Data.
     4. Spectra_Link_Phone.
     5. VoIP_Call_Setup_In.
     6. VoIP_Call_Setup_Out.
     7. VoIP_Ext_Services_Out.
     8. VoIP_Ext_Services_In.
     9. VoIP_RAS_In.
    10. VoIP_RAS_Out.
    11. Spectralink_Multicast.

WS5000.(Cfg).CE> add Spectralink_phone

Adding Classifier...
Status: Success.
```

```
Classifier information...

Available Classifiers (CE):
     1. Ex HTTP Traffic.
     2. Ex Telnet Traffic.
     3. RTP_Data.
     4. Spectra_Link_Phone.
     5. VoIP_Call_Setup_In.
     6. VoIP_Call_Setup_Out.
     7. VoIP_Ext_Services_Out.
     8. VoIP_Ext_Services_In.
     9. VoIP_RAS_In.
    10. VoIP_RAS_Out.
    11. Spectralink_Multicast.
    12. Spectralink_phone.

Classifier information...

Classifier Name                    : Spectralink_phone
CE Description                     :
# of Matching Criteria assigned    : 0

WS5000.(Cfg).CE.[Spectralink_phone]> addmc protocol 119

Adding Matching Criteria for the CE...
Status: Success.

Classifier information...

Classifier Name                    : Spectralink_phone
CE Description                     :
# of Matching Criteria assigned    : 1

Matching Criteria details for 'Protocol' : (MC Offset: 5)
     1. 119 : SRP          SpectraLink Radio Protocol       [Hamilton]

WS5000.(Cfg).CE.[Spectralink_phone]> end
WS5000.(Cfg).CE> end
WS5000.(Cfg)> cg
Classification Group information...

Available Classification Groups:
     1. NetVision_VoIP_In.
     2. NetVision_VoIP_Out.
     3. Spectralink_Group.

WS5000.(Cfg).CG> add SpectralinkGroup

Adding Classification Groups...
Status: Success.

Classification Group information...

Available Classification Groups:
     1. NetVision_VoIP_In.
     2. NetVision_VoIP_Out.
     3. Spectralink_Group.
     4. SpectralinkGroup.
```

```
Classification Group information...
Classification Group Name             : SpectralinkGroup
CG Description                        :
No of classifiers for this CG         : 0

WS5000.(Cfg).CG.[SpectralinkGroup]> set addce Spectralink_phone
Configuring Classification Group... done.
Classification Group information...
Classification Group Name             : SpectralinkGroup
CG Description                        :
No of classifiers for this CG         : 1

Classifiers & Action details:
  1. Spectralink_phone     --> Allow

WS5000.(Cfg).CG.[SpectralinkGroup]> end
WS5000.(Cfg).CG> end
WS5000.(Cfg)> po
Policy Object information......

Available Policies (PO):
     1. NetVision Priority for RF.
     2. NetVision Packet Marking for Ethernet.
     3. Spectralink Output Policy.

WS5000.(Cfg).PO> add SpectralinkOutput 1

Adding Policy Object...
Status: Success.

Policy Object information......

Available Policies (PO):
     1. NetVision Priority for RF.
     2. NetVision Packet Marking for Ethernet.
     3. Spectralink Output Policy.
     4. SpectralinkOutput.

Policy Object information......

Network Policy Name                       : SpectralinkOutput
Description                               :
Type                                      : Outbound Access Port
Default action                            : Allow
No of CG Associated with the Policy Object: 0

WS5000.(Cfg).PO.[SpectralinkOutput]> set addcg SpectralinkGroup

Configuring Policy Object...
Status: Success.
Policy Object information......

Network Policy Name                       : SpectralinkOutput
Description                               :
Type                                      : Outbound Access Port
Default action                            : Allow
No of CG Associated with the Policy Object: 1
```

```
The list of CG associated:
     1. SpectralinkGroup.
Press any key to continue...or (q)uit

CG                TOS     WFQ  Tx-Profile  Pkt Modifier(s)
----------------  ------  ---  ----------  ---------------
SpectralinkGroup  000000  0%   Data        Disabled

WS5000.(Cfg).PO.[SpectralinkOutput]> set cgtxprofile voice SpectralinkGroup

Configuring Policy Object...
Status: Success.
Policy Object information......

Network Policy Name                       : SpectralinkOutput
Description                               :
Type                                      : Outbound Access Port
Default action                            : Allow
No of CG Associated with the Policy Object: 1
The list of CG associated:
     1. SpectralinkGroup.
Press any key to continue...or (q)uit

CG                TOS     WFQ  Tx-Profile  Pkt Modifier(s)
----------------  ------  ---  ----------  ---------------
SpectralinkGroup  000000  0%   Voice       Disabled

WS5000.(Cfg).PO.[SpectralinkOutput]> set cgpktmod tos enable
SpectralinkGroup

Configuring Policy Object...
Status: Success.
Policy Object information......

Network Policy Name                       : SpectralinkOutput
Description                               :
Type                                      : Outbound Access Port
Default action                            : Allow
No of CG Associated with the Policy Object: 1
The list of CG associated:
     1. SpectralinkGroup.
Press any key to continue...or (q)uit

CG                TOS     WFQ  Tx-Profile  Pkt Modifier(s)
----------------  ------  ---  ----------  ---------------
SpectralinkGroup  000000  0%   Voice       TOS

WS5000.(Cfg).PO.[SpectralinkOutput]> set cgwfq 70 SpectralinkGroup

Configuring Policy Object...
Status: Success.
Policy Object information......

Network Policy Name                       : SpectralinkOutput
Description                               :
Type                                      : Outbound Access Port
Default action                            : Allow
No of CG Associated with the Policy Object: 1
```

```
The list of CG associated:
     1. SpectralinkGroup.
Press any key to continue...or (q)uit

CG                TOS     WFQ  Tx-Profile  Pkt Modifier(s)
----------------  ------  ---  ----------  ---------------
SpectralinkGroup  000000  70%  Voice       TOS

WS5000.(Cfg).PO.[SpectralinkOutput]> end
WS5000.(Cfg).PO> end
WS5000.(Cfg)> np
Network Policy information

Available Network Policies:
     1. Default Network Policy.
     2. NetVision_VoIP_Priority.
     3. Spectralink Network Policy.

WS5000.(Cfg).NP> add SpectralinkNetwork

Adding Network Policy...
Status: Success.

Network Policy information

Available Network Policies:
     1. Default Network Policy.
     2. NetVision_VoIP_Priority.
     3. Spectralink Network Policy.
     4. SpectralinkNetwork.

Network Policy information
Network Policy Name                     : SpectralinkNetwork
Policy Description                      :
Outbound Policy Object name             :
Inbound Policy Object name              :

WS5000.(Cfg).NP.[SpectralinkNetwork]> set outboundpolicy SpectralinkOutput
Configuring Network Policy... done.
Network Policy information
Network Policy Name                     : SpectralinkNetwork
Policy Description                      :
Outbound Policy Object name             : SpectralinkOutput
Inbound Policy Object name              :

WS5000.(Cfg).NP.[SpectralinkNetwork]> end
WS5000.(Cfg).NP> end
WS5000.(Cfg)> security

Available Security Policies:
     1. Kerberos Default.
     2. Default.
     3. WEP40 Default.
     4. WEP128 Default.

WS5000.(Cfg).SecurityPolicy> add WPA2

Adding Security Policy...
```

```
Status: Success.

Available Security Policies:
     1. Kerberos Default.
     2. Default.
     3. WEP40 Default.
     4. WEP128 Default.
     5. WPA2.

Security Policy details...
Policy name               : WPA2
Description               :
Beacon ESSID              : Enabled
EAP PreAuthentication     : Enabled
Opportunistic PMK Caching : Enabled

Encryption     Open        WEP         KeyGuard-MCM     TKIP        AES CCMP
----------     ------      -------     ------------     -------     --------
Status:        Enable      Disable     Disable          Disable     Disable

Authentication     Pre-Shared     Kerberos      802.1x,EAP with Radius
--------------     ----------     --------      ----------------------
Status:            Disable        Disable       Disable

WS5000.(Cfg).SecurityPolicy.[WPA2]> set encryption ccmp enable
You must choose an Authentication type. Use space to separate multiple
entry.
          1. Manually Pre-Shared Key.
          2. EAP (802.1x).
          3. Exit command execution.

Authentication Type (1 - 3): 1

Enter the Pre-Shared key for TKIP/CCMP encryption.
Pre-Shared keys must be entered in Hex or ASCII format.
Key entry option (ascii/hex): ascii
The ASCII Key must be 8 - 63 character long.
Enter the Key: BEC1234567
Configuring Security Policy...
Status: Success.

Security Policy details...
Policy name               : WPA2
Description               :
Beacon ESSID              : Enabled
EAP PreAuthentication     : Enabled
Opportunistic PMK Caching : Enabled

Encryption   Open WEP     KeyGuard-MCM   TKIP      AES CCMP
----------   -------   -------            ------------      -------      ---
-----
Status:      Disable   Disable            Disable   Disable Enable

Authentication     Pre-Shared             Kerberos  802.1x,EAP with Radius
--------------     ----------             --------  ----------------------
Status:            Enable   Disable       Disable

WS5000.(Cfg).SecurityPolicy.[WPA2]> end
```

```
WS5000.(Cfg).SecurityPolicy> end
WS5000.(Cfg)> wlan

WLAN Name                ESSID                    Security Policy
--------------           -------                  ---------------
Symbol Default           101                      Default
Secure Access            secure                   Kerberos Default
Private Access           private                  WEP128 Default
Public Access            public                   Default

WS5000.(Cfg).WLAN> add SpectralinkWLAN BBK2

Adding WLAN...
Status: Success.

WLAN Name                ESSID                    Security Policy
---------------          -------                  ---------------
Symbol Default           101                      Default
Secure Access            secure                   Kerberos Default
Private Access           private                  WEP128 Default
Public Access            public                   Default
SpectralinkWLAN          BBK2                     Default

WLAN details...
Name                 : SpectralinkWLAN
ESSID #              : BBK2
Description          :
Security Policy      : Default
WLAN Auth. Status    : Not-Authenticated
ACL Status           : Disabled
ACL Attached         : None
Accept any ESSID     : Disable
Secured Beacon       : Disable
Broadcast Encryption : Open(11a), Open(11b/11g), Open(FH)
Mu Traffic           : MU to MU Allow
Maximum MUs allowed  : 4096
Current MUs          : 0
Default Route        : 0.0.0.0
Network Mask         : 0.0.0.0

WS5000.(Cfg).WLAN.[SpectralinkWLAN]> set security WPA2

Configuring a WLAN...
Status: Success.

WLAN details...
Name                 : SpectralinkWLAN
ESSID #              : BBK2
Description          :
Security Policy      : WPA2
WLAN Auth. Status    : Authenticated
Kerberos auth. name  : BBK2
ACL Status           : Disabled
ACL Attached         : None
Accept any ESSID     : Disable
Secured Beacon       : Disable
Broadcast Encryption : AES-CCMP(11a), AES-CCMP(11b/11g), AES-CCMP(FH)
Mu Traffic           : MU to MU Allow
```

```
Maximum MUs allowed  : 4096
Current MUs          : 0
Default Route        : 0.0.0.0
Network Mask         : 0.0.0.0

WS5000.(Cfg).WLAN.[SpectralinkWLAN]> end
WS5000.(Cfg).WLAN> end
WS5000.(Cfg)> appolicy

Available Access Port Policies:
     1. Default Access Port Policy.

WS5000.(Cfg).APPolicy> add SpectralinkAP

Adding Access Port policy...
Status: Success.

Available Access Port Policies:
     1. Default Access Port Policy.
     2. SpectralinkAP.

Access Port Policy details for "SpectralinkAP":

Policy Name                  : SpectralinkAP
Description                  :
Basic Rate for 11a           : 6,12,24
Supported Rate for 11a       : 9,18,36,48,54
Basic Rate for 11b           : 1,2
Supported Rate for 11b       : 5.5,11
Basic Rate for 11g           : 1,2,5.5,11
Supported Rate for 11g       : 6,9,12,18,24,36,48,54
Basic Rate for FH            : 1
Supported Rate for FH        : 2
RF Preamble                  : long
RTS Threshold                : 2347 Bytes
DTIM Period                  : 10
Beacon Interval              : 100
Allow MUs w/o Spectrum Mgmt  : false

WLAN details for the Access Port policy 'SpectralinkAP'
WLAN Name                Network Policy
---------                --------------

WS5000.(Cfg).APPolicy.[SpectralinkAP]> set supportedrates B none

Configuring a Access Port Policy...
Status: Success.
Access Port Policy details for "SpectralinkAP":

Policy Name                  : SpectralinkAP
Description                  :
Basic Rate for 11a           : 6,12,24
Supported Rate for 11a       : 9,18,36,48,54
Basic Rate for 11b           : 1,2
Supported Rate for 11b       :
Basic Rate for 11g           : 1,2,5.5,11
Supported Rate for 11g       : 6,9,12,18,24,36,48,54
Basic Rate for FH            : 1
```

```
Supported Rate for FH        : 2
RF Preamble                  : long
RTS Threshold                : 2347 Bytes
DTIM Period                  : 10
Beacon Interval              : 100
Allow MUs w/o Spectrum Mgmt  : false

WS5000.(Cfg).APPolicy.[SpectralinkAP]> set basicrates B 1,2,5.5,11

Configuring a Access Port Policy...
Status: Success.
Access Port Policy details for "SpectralinkAP":

Policy Name                  : SpectralinkAP
Description                  :
Basic Rate for 11a           : 6,12,24
Supported Rate for 11a       : 9,18,36,48,54
Basic Rate for 11b           : 1,2,5.5,11
Supported Rate for 11b       :
Basic Rate for 11g           : 1,2,5.5,11
Supported Rate for 11g       : 6,9,12,18,24,36,48,54
Basic Rate for FH            : 1
Supported Rate for FH        : 2
RF Preamble                  : long
RTS Threshold                : 2347 Bytes
DTIM Period                  : 10
Beacon Interval              : 100
Allow MUs w/o Spectrum Mgmt  : false

WS5000.(Cfg).APPolicy.[SpectralinkAP]> set dtim 3
Configuring a Access Port Policy...
Status: Success.
Access Port Policy details for "SpectralinkAP":

Policy Name                  : SpectralinkAP
Description                  :
Basic Rate for 11a           : 6,12,24
Supported Rate for 11a       : 9,18,36,48,54
Basic Rate for 11b           : 1,2,5.5,11
Supported Rate for 11b       :
Basic Rate for 11g           : 1,2,5.5,11
Supported Rate for 11g       : 6,9,12,18,24,36,48,54
Basic Rate for FH            : 1
Supported Rate for FH        : 2
RF Preamble                  : long
RTS Threshold                : 2347 Bytes
DTIM Period                  : 3
Beacon Interval              : 100
Allow MUs w/o Spectrum Mgmt  : false

WS5000.(Cfg).APPolicy.[SpectralinkAP]> add SpectralinkWLAN

Adding WLAN...
Status: Success.
```

```
WLAN details for the Access Port policy 'SpectralinkAP'
WLAN Name                 Network Policy
---------------           --------------
SpectralinkWLAN

WS5000.(Cfg).APPolicy.[SpectralinkAP]> set np SpectralinkNetwork
SpectralinkWLAN

Configuring a Access Port Policy...
Status: Success.

WLAN details for the Access Port policy 'SpectralinkAP'
WLAN Name                 Network Policy
---------------           ------------------
SpectralinkWLAN           SpectralinkNetwork

WS5000.(Cfg).APPolicy.[SpectralinkAP]> end
WS5000.(Cfg).APPolicy> end
WS5000.(Cfg)> etherpolicy

Available EtherPolicies are:
     1. Default Ethernet Policy.

WS5000.(Cfg).EtherPolicy> add SpectralinkEthernet

Adding Ether Policy...
Status : Success.

Available EtherPolicies are:
     1. Default Ethernet Policy.
     2. SpectralinkEthernet.

Ether Policy Name                       : SpectralinkEthernet
Description                             :
Rest of Network on                      : Ethernet 2
VLANs mapped are:
          LAN1                --> Ethernet: 1
          LAN2                --> Ethernet: 2

WS5000.(Cfg).EtherPolicy.[SpectralinkEthernet]> end
WS5000.(Cfg).EtherPolicy> end
WS5000.(Cfg)> switch
Active Switch Policy name: Default Wireless Switch Policy
Available Switch Policies:
     1. Default Wireless Switch Policy.

WS5000.(Cfg).SPolicy> add SpectralinkSwitch

Adding Switch Policy...
Status: Success.

Active Switch Policy name: Default Wireless Switch Policy
Available Switch Policies:
     1. Default Wireless Switch Policy.
     2. SpectralinkSwitch.
```

```
Switch Policy details
------------------------------------------------------------
Policy Name                      : SpectralinkSwitch
Description                      :
Country                          : US
Channel for .11a                 : Auto (once)
Channel for .11b                 : Auto (once)
Channel for .11g                 : Auto (once)
Power Level for .11a             : 20 dBm
Power Level for .11b             : 20 dBm
Power Level for .11g             : 20 dBm
Active EtherPolicy Name          : Default Ethernet Policy
# of APPolicies attached         : 0

Include Adoption List details    : List is Empty.

Exclude Adoption List details    : List is Empty.

Default Adoption action for .11a : Deny.
Default Adoption action for .11b : Deny.
Default Adoption action for FH   : Deny.
Default Adoption action for .11g : Deny.
Send SNMP trap on adoption deny  : Disabled
Press any key to continue...or (q)uit
DS Coexistence                   : Not Applicable for current country
setting.

WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set channel 36 a

Configuring Switch Policy...
Status: Success.
Switch Policy details
------------------------------------------------------------
Policy Name                      : SpectralinkSwitch
Description                      :
Country                          : US
Channel for .11a                 : 36
Channel for .11b                 : Auto (once)
Channel for .11g                 : Auto (once)
Power Level for .11a             : 20 dBm
Power Level for .11b             : 20 dBm
Power Level for .11g             : 20 dBm
Active EtherPolicy Name          : Default Ethernet Policy
# of APPolicies attached         : 0

Include Adoption List details    : List is Empty.

Exclude Adoption List details    : List is Empty.

Default Adoption action for .11a : Deny.
Default Adoption action for .11b : Deny.
Default Adoption action for FH   : Deny.
Default Adoption action for .11g : Deny.
Send SNMP trap on adoption deny  : Disabled
Press any key to continue...or (q)uit
DS Coexistence                   : Not Applicable for current country
setting.
```

```
WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set channel 1 B

Configuring Switch Policy...
Status: Success.
Switch Policy details
------------------------------------------------------------
Policy Name                     : SpectralinkSwitch
Description                     :
Country                         : US
Channel for .11a                : 36
Channel for .11b                : 1
Channel for .11g                : Auto (once)
Power Level for .11a            : 20 dBm
Power Level for .11b            : 20 dBm
Power Level for .11g            : 20 dBm
Active EtherPolicy Name         : Default Ethernet Policy
# of APPolicies attached        : 0

Include Adoption List details   : List is Empty.

Exclude Adoption List details   : List is Empty.

Default Adoption action for .11a : Deny.
Default Adoption action for .11b : Deny.
Default Adoption action for FH   : Deny.
Default Adoption action for .11g : Deny.
Send SNMP trap on adoption deny  : Disabled
Press any key to continue...or (q)uit
DS Coexistence                  : Not Applicable for current country
setting.

WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set channel 1 G

Configuring Switch Policy...
Status: Success.
Switch Policy details
------------------------------------------------------------
Policy Name                     : SpectralinkSwitch
Description                     :
Country                         : US
Channel for .11a                : 36
Channel for .11b                : 1
Channel for .11g                : 1
Power Level for .11a            : 20 dBm
Power Level for .11b            : 20 dBm
Power Level for .11g            : 20 dBm
Active EtherPolicy Name         : Default Ethernet Policy
# of APPolicies attached        : 0

Include Adoption List details   : List is Empty.

Exclude Adoption List details   : List is Empty.

Default Adoption action for .11a : Deny.
Default Adoption action for .11b : Deny.
Default Adoption action for FH   : Deny.
Default Adoption action for .11g : Deny.
Send SNMP trap on adoption deny  : Disabled
```

```
Press any key to continue...or (q)uit
DS Coexistence                  : Not Applicable for current country
setting.

WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set etherpolicy
SpectralinkEthernet

Configuring Switch Policy...
Status: Success.
Switch Policy details
-----------------------------------------------------
Policy Name                     : SpectralinkSwitch
Description                     :
Country                         : US
Channel for .11a                : 36
Channel for .11b                : 1
Channel for .11g                : 1
Power Level for .11a            : 20 dBm
Power Level for .11b            : 20 dBm
Power Level for .11g            : 20 dBm
Active EtherPolicy Name         : SpectralinkEthernet
# of APPolicies attached        : 0

Include Adoption List details   : List is Empty.

Exclude Adoption List details   : List is Empty.


Default Adoption action for .11a : Deny.
Default Adoption action for .11b : Deny.
Default Adoption action for FH   : Deny.
Default Adoption action for .11g : Deny.
Send SNMP trap on adoption deny  : Disabled
Press any key to continue...or (q)uit
DS Coexistence                  : Not Applicable for current country
setting.

WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set appolicy SpectralinkAP

Configuring Switch Policy...
Status: Success.
Switch Policy details
-----------------------------------------------------
Policy Name                     : SpectralinkSwitch
Description                     :
Country                         : US
Channel for .11a                : 36
Channel for .11b                : 1
Channel for .11g                : 1
Power Level for .11a            : 20 dBm
Power Level for .11b            : 20 dBm
Power Level for .11g            : 20 dBm
Active EtherPolicy Name         : SpectralinkEthernet
# of APPolicies attached        : 1

List of APPolicies attached     :
     1. SpectralinkAP.
```

```
Include Adoption List details    : List is Empty.

Exclude Adoption List details    : List is Empty.

Default Adoption action for .11a : Deny.
Default Adoption action for .11b : Deny.
Press any key to continue...or (q)uit
Default Adoption action for FH   : Deny.
Default Adoption action for .11g : Deny.
Send SNMP trap on adoption deny  : Disabled
DS Coexistence                   : Not Applicable for current country
setting.

WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> set countrycode US
```

WARNING: Select the country in which you are using the device. Any other selection will make the operation of this device illegal.

```
Do you want to continue (yes/no) : y
Configuring Switch Policy...
Status: Success.
Switch Policy details
-----------------------------------------------------
Policy Name                      : SpectralinkSwitch
Description                      :
Country                          : US
Channel for .11a                 : 36
Channel for .11b                 : 1
Channel for .11g                 : 1
Power Level for .11a             : 20 dBm
Power Level for .11b             : 20 dBm
Power Level for .11g             : 20 dBm
Active EtherPolicy Name          : SpectralinkEthernet
# of APPolicies attached        : 1

List of APPolicies attached      :
     1. SpectralinkAP.

Include Adoption List details    : List is Empty.

Exclude Adoption List details    : List is Empty.

Default Adoption action for .11a : Deny.
Default Adoption action for .11b : Deny.
Press any key to continue...or (q)uit
Default Adoption action for FH   : Deny.
Default Adoption action for .11g : Deny.
Send SNMP trap on adoption deny  : Disabled
DS Coexistence                   : Not Applicable for current country
setting.
```

```
Radio     Restricted Ch.   Description
-----     --------------   -------------
  B/G            2         Default Entry
  B/G            3         Default Entry
  B/G            4         Default Entry
  B/G            5         Default Entry
  B/G            7         Default Entry
  B/G            8         Default Entry
  B/G            9         Default Entry
  B/G           10         Default Entry

WS5000.(Cfg).SPolicy.[SpectralinkSwitch]> end
WS5000.(Cfg).SPolicy> end
WS5000.(Cfg)> set switchpolicy SpectralinkSwitch

Setting active Switch Policy to 'SpectralinkSwitch'....
Status: Success.
System information...

System Name                  : WS5000
Description                  : WS5000 Wireless Network
Switch Location              :
Software Ver.                : 1.4.3.0-007B
Licensed to                  : Symbol Technologies
Copyright                    : Copyright (c) 2000-2005. All rights reserved.
Serial Number                : 00A0F8658DD2
Number of Licenses           : 30
Max Access Ports             : 30
Max Mobile Clients           : 4096
Active Switch Policy         : SpectralinkSwitch
Emergency Switch Policy      : Not defined
Switch Uptime                : 00d:00h:16m
# of Unassigned Access Ports : 0

WS5000.(Cfg)> ssl disable

Web based configuration (Applet) access by : https

Disabling...
Status : Success.

Web based configuration (Applet) access by : http

WS5000.(Cfg).SSL> end
WS5000.(Cfg)> telnet enable

Telnet Status                : Disabled.
Session inactivity timeout   : 0 (Disabled)

Enabling...
Status : Success.

Telnet Status                : Active.
Session inactivity timeout   : 0 (Disabled)

WS5000.(Cfg).Telnet> end
WS5000.(Cfg)> ethernet
```

```
Available EtherPorts are:
          Ethernet 1
          Ethernet 2

WS5000.(Cfg).Ethernet> 1
Name                          : Ethernet 1
Network Interface Card #      : 1
Description                   : Ethernet Adapter
MAC Address                   : 00:A0:F8:65:8D:D2
Status                        : Enable
Online                        : Yes
Configured Mode               : auto
Negotiated Mode - Duplex      : Half
Negotiated Mode - Speed       : 100
DHCP status                   : Disable
IP Address                    : 10.1.1.101
Network Mask                  : 255.255.255.0
Domain Name                   :
Port type (trunk/non-trunk)   : Non-Trunk
VLAN Tags seen                : None
Up-Time                       : 00d:00h:13m
Transmit packets              : 14406
Received packets              : 14519
Gateway                       : 0.0.0.0
DNS servers                   :

WS5000.(Cfg).Ethernet.[1]> ipaddress 1.1.1.1 255.255.255.0
Configuring IP address of Ethernet 1...
Status: Success.
Name                          : Ethernet 1
Network Interface Card #      : 1
Description                   : Ethernet Adapter
MAC Address                   : 00:A0:F8:65:8D:D2
Status                        : Enable
Online                        : Yes
Configured Mode               : auto
Negotiated Mode - Duplex      : Half
Negotiated Mode - Speed       : 100
DHCP status                   : Disable
IP Address                    : 1.1.1.1
Network Mask                  : 255.255.255.0
Domain Name                   :
Port type (trunk/non-trunk)   : Non-Trunk
VLAN Tags seen                : None
Up-Time                       : 00d:00h:14m
Transmit packets              : 14407
Received packets              : 14567
Gateway                       : 0.0.0.0
DNS servers                   :

WS5000.(Cfg).Ethernet.[1]> end
WS5000.(Cfg).Ethernet> 2
Name                          : Ethernet 2
Network Interface Card #      : 2
Description                   : Ethernet Adapter
MAC Address                   : 00:A0:F8:65:8D:D3
Status                        : Enable
Online                        : Yes
```

```
Configured Mode               : auto
Negotiated Mode - Duplex      : Half
Negotiated Mode - Speed       : 100
DHCP status                   : Enable
IP Address                    : 0.0.0.0
Network Mask                  : 0.0.0.0
Domain Name                   : sj.symbol.com
Port type (trunk/non-trunk)   : Non-Trunk
VLAN Tags seen                : None
Up-Time                       : 00d:00h:14m
Transmit packets              : 103
Received packets              : 107
Gateway                       : 0.0.0.0
DNS servers                   :

WS5000.(Cfg).Ethernet.[2]> ipaddress dhcp disable
Configuring IP address of Ethernet 2...
Status: Success.
Name                          : Ethernet 2
Network Interface Card #      : 2
Description                   : Ethernet Adapter
MAC Address                   : 00:A0:F8:65:8D:D3
Status                        : Enable
Online                        : Yes
Configured Mode               : auto
Negotiated Mode - Duplex      : Half
Negotiated Mode - Speed       : 100
DHCP status                   : Disable
IP Address                    : 0.0.0.0
Network Mask                  : 0.0.0.0
Domain Name                   : sj.symbol.com
Port type (trunk/non-trunk)   : Non-Trunk
VLAN Tags seen                : None
Up-Time                       : 00d:00h:14m
Transmit packets              : 106
Received packets              : 114
Gateway                       : 0.0.0.0
DNS servers                   :

WS5000.(Cfg).Ethernet.[2]> ipaddress 10.3.0.47 255.0.0.0
Configuring IP address of Ethernet 2...
Status: Success.
Name                          : Ethernet 2
Network Interface Card #      : 2
Description                   : Ethernet Adapter
MAC Address                   : 00:A0:F8:65:8D:D3
Status                        : Enable
Online                        : Yes
Configured Mode               : auto
Negotiated Mode - Duplex      : Half
Negotiated Mode - Speed       : 100
DHCP status                   : Disable
IP Address                    : 10.3.0.47
Network Mask                  : 255.0.0.0
Domain Name                   : sj.symbol.com
Port type (trunk/non-trunk)   : Non-Trunk
VLAN Tags seen                : None
Up-Time                       : 00d:00h:14m
```

```
Transmit packets              : 107
Received packets              : 121
Gateway                       : 0.0.0.0
DNS servers                   :

WS5000.(Cfg).Ethernet.[2]> end
WS5000.(Cfg).Ethernet> end
WS5000.(Cfg)> accessport

Access Ports            Radio MAC           Device MAC         Type   Status
--------------------    -----------------   -----------------  -----  ------------
00:A0:F8:CD:EE:54 [G]   00:A0:F8:C0:38:8C   00:A0:F8:CD:EE:54   G     Unavailable
00:A0:F8:CD:EE:54 [A]   00:A0:F8:C0:44:BC   00:A0:F8:CD:EE:54   A     Unavailable
00:A0:F8:CD:EE:4D [G]   00:A0:F8:C0:38:60   00:A0:F8:CD:EE:4D   G     Unavailable
00:A0:F8:CD:EE:4D [A]   00:A0:F8:CD:DA:BC   00:A0:F8:CD:EE:4D   A     Unavailable

No. of Active Access Ports/Radios: 0/0

WS5000.(Cfg).APort> port "00:A0:F8:CD:EE:54 [G]"

Access Port details...
Name                      : 00:A0:F8:CD:EE:54 [G]
Device type               : AP300
Radio MAC Address         : 00:A0:F8:C0:38:8C
Device MAC Address        : 00:A0:F8:CD:EE:54
Port Type                 : G
Description               :
Status                    : Unavailable
Tx Channel                : Auto (once)
Current Tx Channel        : 0
Policy Attached           : Default Access Port Policy
Tx Power                  : 20 dBm
Current Tx Power          : 0 dBm
Location                  :
NIC Connected             : Ethernet 1
VLAN id                   : None
VLAN Tags seen            : None
CCA Mode                  : 1
CCA Threshold             : 1
Diversity                 : Full
Maximum MUs allowed       : 256
No. of MUs associated     : 0
Up Time                   : 0d:0h:0m
Statistics gathering      : Disable
Tx Packets/second         : 0
ERP Protection            : off
Short Slot                : on
Antenna                   : internal
Indoor/Outdoor            : in
Antenna Correction        : 0
MU Power Adjustment       : 0
All Channels              : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,
Valid Power Range         : 4-20

WS5000.(Cfg).APort.[00:A0:F8:CD:EE:54 [G]]> set policy SpectralinkAP

Configuring Access Port device...
Status: Success.
```

```
Access Port details...
Name                    : 00:A0:F8:CD:EE:54 [G]
Device type             : AP300
Radio MAC Address       : 00:A0:F8:C0:38:8C
Device MAC Address      : 00:A0:F8:CD:EE:54
Port Type               : G
Description             :
Status                  : Unavailable
Tx Channel              : Auto (once)
Current Tx Channel      : 0
Policy Attached         : SpectralinkAP
Tx Power                : 20 dBm
Current Tx Power        : 0 dBm
Location                :
NIC Connected           : Ethernet 1
VLAN id                 : None
VLAN Tags seen          : None
CCA Mode                : 1
CCA Threshold           : 1
Diversity               : Full
Maximum MUs allowed     : 256
No. of MUs associated   : 0
Up Time                 : 0d:0h:0m
Statistics gathering    : Disable
Tx Packets/second       : 0
ERP Protection          : off
Short Slot              : on
Antenna                 : internal
Indoor/Outdoor          : in
Antenna Correction      : 0
MU Power Adjustment     : 0
All Channels            : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,
Valid Power Range       : 4-20

WS5000.(Cfg).APort.[00:A0:F8:CD:EE:54 [G]]> set name Channel3_388c

Configuring Access Port device...
Status: Success.

Access Port details...
Name                    : Channel3_388c
Device type             : AP300
Radio MAC Address       : 00:A0:F8:C0:38:8C
Device MAC Address      : 00:A0:F8:CD:EE:54
Port Type               : G
Description             :
Status                  : Active
Tx Channel              : 1
Current Tx Channel      : 1
Policy Attached         : SpectralinkAP
Tx Power                : 20 dBm
Current Tx Power        : 20 dBm
Location                :
NIC Connected           : Ethernet 1
VLAN id                 : None
VLAN Tags seen          : None
CCA Mode                : 1
```

```
CCA Threshold           : 1
Diversity               : Full
Maximum MUs allowed     : 256
No. of MUs associated   : 1
Up Time                 : 0d:0h:1m
Statistics gathering    : Disable
Tx Packets/second       : 0
ERP Protection          : on
Short Slot              : off
Antenna                 : internal
Indoor/Outdoor          : in
Antenna Correction      : 0
MU Power Adjustment     : 0
All Channels            : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,
Valid Power Range       : 4-20

WS5000.(Cfg).APort.[Channel3_388c]> set channel 3

Configuring Access Port device...
Status: Success.

Access Port details...
Name                    : Channel3_388c
Device type             : AP300
Radio MAC Address       : 00:A0:F8:C0:38:8C
Device MAC Address      : 00:A0:F8:CD:EE:54
Port Type               : G
Description             :
Status                  : Active
Tx Channel              : 3
Current Tx Channel      : 3
Policy Attached         : SpectralinkAP
Tx Power                : 20 dBm
Current Tx Power        : 20 dBm
Location                :
NIC Connected           : Ethernet 1
VLAN id                 : None
VLAN Tags seen          : None
CCA Mode                : 1
CCA Threshold           : 1
Diversity               : Full
Maximum MUs allowed     : 256
No. of MUs associated   : 1
Up Time                 : 0d:0h:1m
Statistics gathering    : Disable
Tx Packets/second       : 0
ERP Protection          : on
Short Slot              : off
Antenna                 : internal
Indoor/Outdoor          : in
Antenna Correction      : 0
MU Power Adjustment     : 0
All Channels            : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,
Valid Power Range       : 4-20

WS5000.(Cfg).APort.[Channel3_388c]> end
WS5000.(Cfg).APort> end
WS5000.(Cfg)> end
```

```
WS5000> save config example.cfg

Saving running configuration in: example.cfg

Saving wireless network management configuration..

Configuration saved successfully.
```